Explanation:

Abciximab (ReoPro) is a chimeric monoclonal antibody that is a glycoprotein IIb/IIIa receptor antagonist. It inhibits platelet aggregation and is mainly used during and after coronary artery procedures such as angioplasty.

The following are contraindications to the use of abciximab:

- Active internal bleeding
- Major surgery, intracranial surgery or trauma within the last 2 months
- Stroke within the last 2 years
- Intracranial neoplasm
- Arteriovenous malformation or aneurysm
- Haemorrhagic diathesis
- Vasculitis
- Hypertensive retinopathy

Next question

Explanation:

Abciximab (ReoPro) is a chimeric monoclonal antibody that is a glycoprotein IIb/IIIa receptor antagonist. It inhibits platelet aggregation and is mainly used during and after coronary artery procedures such as angioplasty.

It is advised that baseline prothrombin time, activated clotting time, activated partial thromboplastin time, platelet count, haemoglobin and haematocrit are all measured at baseline before use. Haemoglobin and haematocrit should be measured again 12 and 24 hours after commencing treatment and the platelet count 2-4 hours and 24 hours after starting treatment.

The EPIC trial showed that the use of abciximab reduced the risk of death, myocardial infarction, repeat angioplasty, bypass surgery and balloon pump insertion when used for high-risk patients undergoing angioplasty. www.ncbi.nlm.nih.gov

Abciximab is safe to use in the presence of chronic renal insufficiency.

The following are contraindications to the use of abciximab:

- Active internal bleeding
- Major surgery, intracranial surgery or trauma within the last 2 months
- Stroke within the last 2 years
- Intracranial neoplasm
- Arteriovenous malformation or aneurysm
- Haemorrhagic diathesis
- Vasculitis
- Hypertensive retinopathy

The side effects of abciximab include:

- Nausea and vomiting
- Bleeding manifestations
- Bradycardia
- Chest pain
- Back pain
- Puncture site pain
- Thrombocytopenia
- Cardiac tamponade (rare)
- Adult respiratory distress (rare)

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Abciximab:

Score 1 of 1

The mechanism of action of abciximab mimics which of the following haematological conditions? Select ONE answer only.

Answer	Option	Question Statistics
	Haemophilia B	4%
	Protein C deficiency	19%
	Von Willebrand disease	29%
✔	Glanzmann's thrombasthenia	43%
	Haemophilia A	5%

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Abciximab:

Score 0 of 1

Which of the following is NOT a contraindication to the use of abciximab (ReoPro)? Select ONE answer only.

Answer	Option	Question Statistics
	Active internal bleeding	3%
	Intracranial neoplasm	8%
	Vasculitis	30%
✔	Major surgery within the last 6 months	33%
✖	Stroke within the last 2 years	25%

Explanation:

Allopurinol should not be commenced during an acute attack of gout as it can both prolong the attack and precipitate a further acute attack. In patients already established on allopurinol it should, however, be continued and the acute attack treated as normal with NSAIDs or colchicine as appropriate.

The first-line treatment for acute attacks of gout is non-steroidal anti-inflammatory drugs (NSAIDs), such as naproxen. Colchicine can be used in circumstances where there is a contraindication to the use of NSAIDs, such as in patients with hypertension and those with a history of peptic ulcer disease. This patient has no reason to avoid NSAIDs and therefore naproxen would remain the drug of choice from the list of options above.

When the acute attack has settled it would be reasonable to titrate up the dose of the allopurinol, aiming for plasma urate levels of less than 6 md/dl (< 360 µmol/l).

Febuxostat (Uloric) is an alternative to allopurinol used in the management of chronic gout.

Next question

Question SBA: #13741

SBAQ: Pharmacology

Tag

Report this question

The treatment of acute gout:

Score 0 of 1

A 46-year-old man presents with an acute episode of gout.

Which of the following statements regarding the treatment of acute gout is true? Select ONE answer only.

Answer	Option	Question Statistics
	Colcichine is contraindicated in heart failure	9%
✖	Colchicine acts by reducing uric acid synthesis	9%
	It is appropriate to start Allopurinol at 100-300mg per day	4%
✔	A common first-line treatment is Naproxen as a stat dose of 750mg followed by 250mg TDS	74%
	Aspirin can be used as a first-line treatment	5%

Aspirin can be used as a first-line treatment

Explanation:

In the absence of any contraindications, high-dose NSAIDs are the first-line treatment for acute gout. Naproxen 750mg as a stat dose followed by 250 mg TDS is a commonly used and effective regime.

Aspirin should not be used in gout as it reduces the urinary clearance of urate and interferes with the action of urosuric agents. Naproxen, Diclofenac or Indomethacin are more appropriate choices.

Allopurinol is used prophylactically, preventing future attacks by reducing serum uric acid levels. It should not be started in the acute phase as it increases the severity and duration of symptoms.

Colchicine acts on the neutrophils, binding to tubulin to prevent neutrophil migration into the joint. It is as effective as NSAIDs in relieving acute attacks. It also has a role in prophylactic treatment if Allopurinol is not tolerated.

NSAIDs are contraindicated in heart failure as they can cause fluid retention and congestive cardiac failure. Colchicine is the preferred treatment in patients with heart failure or those who are intolerant of NSAIDs.

Finish

Tag

Report this question

A 65-year-old man presents with an acute episode of gout. He has a history of chronic heart failure and hypertension. His current medications include ramipril and furosemide.

Which of the following statements regarding the treatment of gout is true? Select ONE answer only.

Answer	Option	Question Statistics
	NSAIDs are the treatment of choice for patients with a history of heart failure	15%
✔	Colchicine has a role in prophylactic treatment	45%
	Febuxostat is an effective treatment for acute gout	20%
	Allopurinol is an effective treatment for acute gout	8%
	Corticosteroids should be avoided in acute gout	13%

Explanation:

The diagnosis in this case is clearly that of gout. The European League Against Rheumatism (EULAR) guidelines for diagnosis state that the development of acute pain in a joint which becomes swollen, tender and erythematous and which reaches its crescendo over a 6-12 hour period is highly suggestive of crystal arthropathy.

There is little benefit in checking serum urate levels to confirm hyperuricaemia prior to initiating treatment in acute attacks of gout and treatment should not be delayed. Although they can be helpful in monitoring response to treatment they often decrease during an acute attack and can be normal. If levels are checked and are normal during the attack they should be repeated once the attack has resolved.

The first-line treatment for acute attacks of gout is non-steroidal anti-inflammatory drugs (NSAIDs), such as naproxen. NSAIDs should, however, be used with caution in patients with a history of hypertension. Given that this patient has had difficulty controlling his blood pressure and remains hypertensive it would be prudent to avoid them in this case.

Colchicine is an effective alternative to gout, although it is somewhat slower to take effect. It is often used in patients with contraindications to NSAIDs, such as in patients with hypertension and those with a history of peptic ulcer disease. Colchine in addition to having anti-inflammatory effects can also have effects on the bone marrow and cause both neutrophilia and thrombocytopenia. It is therefore contraindicated in patients with blood disorders, such as in this case.

Allopurinol should not be used during an acute attack of gout as it can both prolong the attack and precipitate a further acute attack. In patients already established on allopurinol, it should be continued and the acute attack treated as normal with NSAIDs, colchicine or corticosteroids as appropriate.

Corticosteroids are effective alternative in the management of acute gout in patients with contraindications to NSAIDs or colchicine. They can be given orally, IM, IV intra-articularly. In this patient this would be the safest and most sensible treatment modality.

Explanation:

In the absence of any contraindications, high-dose NSAIDs are the first-line treatment for acute gout. Naproxen 750mg as a stat dose followed by 250 mg TDS is a commonly used and effective regime.

NSAIDs are contraindicated in heart failure as they can cause fluid retention and congestive cardiac failure. Colchicine is the preferred treatment in patients with heart failure or those who are intolerant of NSAIDs.

Colchicine acts on the neutrophils, binding to tubulin to prevent neutrophil migration into the joint. It is as effective as NSAIDs in relieving acute attacks. It also has a role in prophylactic treatment if Allopurinol is not tolerated.

Aspirin should not be used in gout as it reduces the urinary clearance of urate and interferes with the action of urosuric agents. Naproxen, Diclofenac or Indomethacin are more appropriate choices.

Allopurinol is used prophylactically, preventing future attacks by reducing serum uric acid levels. It should not be started in the acute phase as it increases the severity and duration of symptoms.

Febuxostat (Uloric) is an alternative to allopurinol used in the management of chronic gout.

Corticosteroids are effective alternative in the management of acute gout in patients with contraindications to NSAIDs or colchicine. They can be given orally, IM, IV intra-articularly. In this patient this would be the safest and most sensible treatment modality.

Explanation:

Supraventricular tachycardia (SVT) is the most common non-arrest arryhthmia during childhood and is the most common arrhythmia that produces cardiovascular instability during infancy.

The current APLS guidelines recommend that if the patient has no features of shock and remains haemodynamically stable then vagal maneovres should be attempted initially. If this is unsuccessful then:

- An initial dose of 100 mcg/kg of adenosine should be given.
- After two minutes another dose of 200 mcg/kg adenosine should be given is the child remains in stable SVT
- After a further two minutes another dose of 300 mcg/kg adenosine should be given

If the child remains in stable SVT despite these measures then the guidelines recommend that following be considered:

- Adenosine 400-500 mcg/kg
- Synchronous DC shock
- Amiodarone

Amiodarone, if given, should be administered initially at a dose of 5-10 mg/kg over 20 minutes to 2 hours, then by continuous infusion 300 mcg/kg/hour increased according to response by 1.5 mg/kg/hour. The infusion rare should not exceed 1.2 g in 24 hours.

This child weighs 20 kg and has already received one dose of adenosine. He should therefore receive a second dose of 200 mcg/kg, which is 4 mg.

Next question

		Statistics
✔	Adenosine 3 mg IV	37%
	Adenosine 12 mg IV	3%
	Adenosine 1.5 mg IV	4%
✖	Adenosine 6 mg IV	56%
	Adenosine 9 mg IV	1%

Explanation:

Adenosine is administered by a rapid IV bolus, followed by a saline flush. The standard initial adult dose is 6 mg, followed if necessary by a 12 mg, and then a further 12 mg bolus at 1-2 minute intervals until an effect is observed.

Patients with a heart transplant, however, are very sensitive to the effects of adenosine and should receive a reduced initial dose of 3mg, followed by 6 mg and then 12 mg.

Question SBA: #26296

SBAQ: Pharmacology

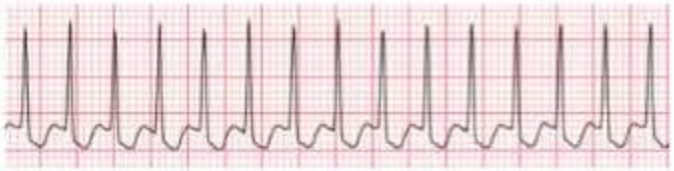
Tag

Report this question

Abnormal pulse rate in children:

Score 0 of 1

A 5-year-old boy is brought in by ambulance with palpitations. His rhythm strip is shown below. You have attempted vagal maneovres and given 2 doses of adenosine but his condition remains unchanged. He is haemodynamically stable. He weighs 20 kg.



According to the current APLS guidelines which of the following would be the most appropriate next step in his management? Select ONE answer only.

Answer	Option	Question Statistics
✖	Adenosine 2 mg IV	12%
✔	Adenosine 6 mg IV	52%
	Adenosine 5 mg IV	3%
	Adenosine 4 mg IV	21%
	Adenosine 3 mg IV	13%

Explanation:

Adenosine is a purine nucleoside that is primarily used in the diagnosis and treatment of paroxysmal supraventricular tachycardia.

It acts by stimulating A_1-adenosine receptors and opening acetylcholine-sensitive potassium channels. This hyperpolarizes the cell membrane in the atrio-ventricular (AV) node and, by inhibiting the calcium channels, slows conduction in the AV node.

Adenosine is administered by a rapid IV bolus, followed by a saline flush. The initial adult dose is 6 mg, followed if necessary by a 12 mg, and then a further 12 mg bolus at 1-2 minute intervals until an effect is observed.

Adenosine has a very short half-life of less than 10 seconds and acts rapidly within 10 seconds. The duration of actions is 10-20 seconds.

Because of the short half-life any side effects experienced are generally very short lived. These include:

- Sense of 'impending doom'
- Facial flushing
- Dyspnoea
- Chest discomfort
- Metallic taste

Contra-indications to the use of adenosine include:

- 2^{nd} or 3^{rd} degree AV block
- Sick sinus syndrome
- Long QT syndrome
- Severe hypotension
- Decompensated heart failure
- Chronic obstructive lung disease
- Asthma

Patients with a heart transplant are very sensitive to the effects of adenosine and should receive a reduced initial dose of 3mg, followed by 6 mg and then 12 mg.

The effects of adenosine are potentiated by dipyrimadole and the dose should be reduced in patients taking it.

Explanation:

Adrenaline should be given as soon as circulatory access has been obtained in non-shockable (PEA/asystole) cardiac arrests. The dose is 1 mg (10 mL of 1:10,000 or 1 mL of 1:1000) via the IV or IO routes.

Adrenaline should be given after the 3rd shock in a shockable (Vf/pVT) cardiac arrest once chest compressions have resumed. The dose is 1 mg (10 mL of 1:10,000 or 1 mL of 1:1000)

It should subsequently be given every 3-5 mins (i.e. alternate loops) and it should be given without interrupting chest compressions.

The alpha-adrenergic effects of adrenaline cause systemic vasoconstriction, which increases coronary and cerebral perfusion pressures.

The beta-adrenergic effects of adrenaline are positively inotropic (increased myocardial contractility) and chronotropic (increased heart rate) and may increase coronary and cerebral blood flow. Concomitant increases in myocardial oxygen consumption and ectopic ventricular arrhythmias (particularly in the absence of acidaemia), transient hypoxaemia because of pulmonary arertiovenous shunting, impaired microcirculation, and increased post-cardiac arrest myocardial dysfunction may, however, offset these benefits.

Although there is no evidence of long-term benefit from its use in cardiac arrest, the improved short-term survival documented in some studies warrants its continued use.

	Flecainide	3%
	Digoxin	9%
	Bumetanide	3%
✔	Amiodarone	84%

Explanation:

Corneal microdeposits are almost universally present (over 90%) in individuals taking amiodarone for longer than 6 months, especially at does greater that 400 mg/day. These deposits typically do not cause any symptoms but about 10% of patients complain of seeing a 'bluish halo'.

Amiodarone also has other effects on the eye, but these are much rarer occurring in only 1-2% of patients:

- Optic neuropathy
- Non-arteritic anterior ischaemic optic neuropathy (N-AION)
- Optic disc swelling
- Visual field defects

Next question

A 4-year-old child is brought to the resus area of your Emergency Department in a VF arrest. He is 16 kg in weight. He has received 3 DC shocks but remains in VF and still does not have an output.

According to the latest APLS guidelines what dose of amiodarone should he now recieve? Select ONE answer only.

Answer	Option	Question Statistics
✖	32 mg	14%
	64 mg	19%
	96 mg	5%
✔	80 mg	47%
	16 mg	14%

Explanation:

Amiodarone should be given after the 3rd and 5th shocks in a shockable (Vf/pVT) paediatric cardiac arrest. The dose is 5 mg/kg (maximum 300 mg) and it should be given over 3 minutes. Administration by a central line is recommended if possible.

150 mg	9%
250 mg	1%

Explanation:

Amiodarone should be given after the 3rd shock in a shockable (Vf/pVT) cardiac arrest during chest compressions. The dose is 300 mg as an IV bolus diluted in 5% dextrose to a volume of 20 mL.

A further dose of 150 mg should be given if VF/pVT persists after 5 defibrillation attempts.

Amiodarone is not indicated for PEA or asystole.

Lidocaine, at a dose of 1mg/kg, can be administered as an alternative if amiodarone is unavailable, but do not give lidocaine if amiodarone has already been given.

Next question

Report this question

Which of the following statements regarding amiodarone is true? Select ONE answer only.

Answer	Option	Question Statistics
	It prolongs phase 1 of the cardiac action potential	21%
	It has a lower efficacy than dronedarone	10%
✖	Metabolism is increased by co-ingestion of grapefruit juice	26%
	It has a short plasma half-life	9%
✔	It is expressed in breast milk	35%

Explanation:

Amiodarone is an antiarrhythmic agent used in the treatment of both ventricular and atrial arrhythmias. It is a class III antiarrhythmic and works by prolonging phase 3 of the cardiac action potential, the repolarisation phase where there is normally high potassium permeability and low calcium permeability.

Dronederone is used as an alternative to amiodarone under certain circumstances. Amiodarone has a greater efficacy than dronedarone but dronedarone has a reduced rate of side effects.

The metabolism of amiodarone is inhibited by grapefruit juice.

Amiodarone has a very long plasma half-life in the range of 2 weeks to 5 months. The average half-life is approximately 2 months.

Amiodarone is expressed in breast milk and breast-feeding mothers should be advised against its use.

Tag

Report this question

Amiodarone in cardiac arrest:

Score 1 of 1

You are called to a cardiac arrest in the resus area of your Emergency Department.

Which SINGLE statement regarding the use of amiodarone in cardiac arrest in true?

Answer	Option	Question Statistics
	It has a mild positive inotropic effect	13%
	It is indicated in PEA arrests	5%
	It should be diluted in 0.9% saline to a volume of 20 mls	14%
	It improves long-term morbidity and mortality	8%
✔	It increases the duration of the action potential	59%

Explanation:

Amiodarone should be given after the 3rd shock in a shockable (Vf/pVT) cardiac arrest during chest compressions. The dose is 300 mg as an IV bolus diluted in 5% dextrose to a volume of 20 mL. Amiodarone is not indicated for PEA or asystole.

A further dose of 150 mg should be given if VF/pVT persists after 5 defibrillation attempts.

Lidocaine, at a dose of 1mg/kg, can be administered as an alternative if amiodarone is unavailable, but do not give lidocaine if amiodarone has already been given.

Amiodarone is a membranbe-stabilising antiarrhythmic drug that increases the duration of the action potential and the refractory period in atrial and ventricular myocardium. Atrioventricular conduction is slowed, and a similar effect is seen with accessory pathways.

Amiodarone has a mild negative inotropic action and causes peripheral vasodilatation through non-competitive alpha-blocking effects.

Although there is no evidence of long-term benefit from the use of amiodarone, it may improve short-term survival warranting its continued use.

Next question

The main mechanisms of action of the various antiarrhythmic drugs is shown in the table below:

Antiarrhythmic drug	Main mechanism of action
Adenosine	Opens K^+ channels in heart, slowing conduction in the AV node
Amiodarone	Blocks Na^+ and K^+ channels and beta-adrenoreceptors, prolonging phase 3 of cardiac action potential and slowing conduction at SA and AV nodes
Digoxin	Inhibits the Na/K ATPase in cardiac myocytes
Flecainide	Blocks Na+ channel in heart, slowing conduction of the cardiac impulse
Lidocaine	Blocks Na+ channels in heart, slowing conduction of the cardiac impulse
Sotalol	Blocks beta-adrenoreceptors and K^+ channels, reducing heart rate and slowing conduction in the AV node. Also prolongs phase 3 of cardiac action potential
Verapamil	Blocks Ca^{2+} channels in heart, slowing conduction in the AV node

Question SBA: #13916

SBAQ: Pharmacology

Tag

Report this question

Anticoagulation:

Score 0 of 1

You review a 70-year-old man with a diagnosis of prostate cancer. He presents with left leg swelling, erythema and tenderness. You organise an ultrasound scan of his leg, which reveals a large proximal deep vein thrombosis (DVT). He has had no previous episodes of venous thromboembolism and has no other past medical history of note.

What is the most appropriate management strategy in this case? Select ONE answer only.

Answer	Option	Question Statistics
	Treat with therapeutic dose low molecular weight heparin for 3 months	13%
✖	Treat with warfarin with a target INR of 2.5 for 3 months	26%
	Treat with warfarin with a target INR of 3.5 for 6 months	8%
	Treat with warfarin with a target INR of 2.5 for 6 months	31%
✔	Treat with therapeutic dose low molecular weight heparin for 6 months	22%

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Anticoagulation: Score 1 of 1

You review a 50-year-old man with a swollen, erythematous right calf. His D-dimer is elevated and you organise an ultrasound scan that reveals a deep vein thrombosis (DVT) in his right calf. He has had a previous DVT and is now on warfarin. His INR today is 2.5.

Which ONE of the following is the most appropriate management in this case?

Answer	Option	Question Statistics
	He should be started on a low molecular weight heparin	23%
	He should be started on unfractionated heparin	5%
	He should be started on fondaparinux	3%
	He should continue with his current warfarin dosage	12%
✔	His target INR should be raised to 3.5	57%

Treat with warfarin with a target INR of 2.5 for 6 months — 31%

✔ Treat with therapeutic dose low molecular weight heparin for 6 months — 22%

Explanation:

Patients with cancer-associated VTE are at high risk of recurrence and LMWH has been shown to be more effective than warfarin for the first 6 months of treatment.

Please refer to the BJH guidelines on oral anticoagulation with warfarin: www.bcshguidelines.com

Next question

Explanation:

There are numerous specific antidotes available for specific poisons and overdoses. Some of these are outlined in the table below:

Poison	Antidote
Benzodiazepines	Flumazenil
Beta-blockers	Atropine Glucagon Insulin
Carbon monoxide	Oxygen
Cyanide	Hydroxocobalamin Sodium nitrite Sodium thiosulphate
Digoxin	Digoxin-specific antibody Fab fragments (Digibind)
Ethylene glycol	Ethanol Fomepizole
Heparin	Protamine sulphate
Iron salts	Desferrioxamine
Isoniazid	Pyridoxine
Methanol	Ethanol Fomepizole
Opioids	Naloxone
Organophosphates	Atropine Pralidoxime
Paracetamol	Acetylcysteine Methionine
Sulphonylureas	Glucose Octreotide
Thallium	Prussian blue
Warfarin	Vitamin K Fresh frozen plasma (FFP)

Question SBA: #18416

SBAQ: Pharmacology

Tag

Report this question

Side effects of antipyschotic drugs:

Score 0 of 1

Which SINGLE statement regarding the side effects of antipsychotic drugs is FALSE?

Answer	Option	Question Statistics
✖	Akinesia is an inability to initiate movement	9%
✔	Dystonia tends to only appear after long-term treatment	50%
	Antipyschotics should not be given in the presence of CNS depression	10%
	Dystonia is more common in children than adults	18%
	There is an increased risk of mortality in elderly patients with dementia-related psychosis treated with haloperidol	13%

Explanation:

Explanation:

Extrapyramidal side effects occur most commonly with the piperazine phenothiazines (fluphenazine, prochlorperazine and trifluoperazine) and butyrophenones (benperidol and haloperidol). Haloperidol is the most common causative antipsychotic drug.

Tardive dyskinesia (rhythmic, involuntary movements of tongue, face and jaw) usually develops after long-term treatment or with high dosage. It is the most serious manifestation of extrapyramidal symptoms as it may be irreversible on withdrawing the causative drug and treatment is generally ineffective.

Dystonia (abnormal face and body movements) is more common in children and young adults and tends to appear after only a few doses. Acute dystonia can be treated with procyclidine 5mg IV or benzatropine 2mg IV as a bolus.

Akathisia is characterized by an unpleasant sensation of restlessness. Akinesia is an inability to initiate movement.

There is increased cerebral sensitivity in renal impairment and reduced doses should be used.

There is an increased risk of mortality in elderly patients with dementia-related psychosis treated with haloperidol. This appears to be due to increased risk of cardiovascular events and infections such as pneumonia.

The contraindications to the use of antipsychotic drugs include:

- Reduced conscious level / coma
- CNS depression
- Phaeochromocytoma

IV lorazepam 1 mg

22%

Explanation:

The current APLS algorithm for the treatment of the convulsing child is as follows:

Step 1 (5 minutes after start of convulsion):
In a child that has been convulsing for 5 minutes or more an initial dose of benzodiazepine should be given:

- Lorazepam 0.1 mg/kg should be given IV or IO if vascular access is available
- Buccal midazolam 0.5 mg/kg or rectal diazepam 0.5 mg/kg can be given as alternatives if no vascular access is available

Step 2 (10 minutes after start of step 1):
If the convulsion continues for a further 10 minutes a second dose of benzodiazepine should be given and senior help should be summoned.

Step 3 (10 minutes after start of step 2):
At this stage senior help is needed to reassess the child and advise on management. The following management is recommended:

- If not already on phenytoin then a phenytoin infusion should be set up (20 mg/kg IV infusion over 20 minutes)
- If already taking phenytoin then phenobarbitone can be used in its place (20 mg/kg IV infusion over 20 minutes)
- Rectal paraldehyde can be considered at a dose of 0.8 ml/kg of the 50:50 mixture whilst preparing the infusion

Step 4 (20 minutes after start of step 3):
If the child is still convulsing at this stage then an anaesthetist must be present and a rapid sequence induction with thiopental is recommended.

Explanation:

The following table summarises the doses of drugs commonly used in paediatric cardiac arrest:

Drug	Dose
Adrenaline (epinephrine) IV/IO	10 mcg/kg
Adrenaline (epinephrine) ET bolus	100 mcg/kg
Amiodarone IV infusion	5 mg/kg over 3 minutes (max 300 mg)
Calcium gluconate 10%	0.3-0.5 ml/kg
Lidocaine IV/IO	1 mg/kg (max 100 mg)
Magnesium sulphate IV	25-50 mg/kg
Sodium bicarbonate IV	1 ml/kg 8.4%

Next question

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Mechanism of action of aspirin:

Score 0 of 1

Which of the following statements regarding the mechanism of action of aspirin is true? Select ONE answer only.

Answer	Option	Question Statistics
✔	It inhibits both COX-1 and COX-2 at medium to high doses (500-5000 mg per day)	44%
	COX-1 inhibition is primarily responsible for its anti-inflammatory effects	23%
	It only inhibits COX-2 at doses greater than 500 mg per day	1%
✖	It only inhibits COX-2 at doses of 75 mg daily	12%
	It reversibly blocks cyclo-oygenase (COX)	1%

It reversibly blocks cyclo-oygenase (COX)

Explanation:

Aspirin irreversibly blocks cyclo-oygenase by covalently acetylating the cyclo-oxygenase active site in both COX-1 and COX-2.

At low doses (75 mg per day) aspirin only inhibits COX-1, the enzyme responsible for making thromboxane A2, and therefore principally exhibits an anti-thrombotic effect.

At medium to high doses (500-5000 mg per day) aspirin inhibits both COX-1 and COX-2. COX-2 is responsible for the production of prostaglandins and therefore has an anti-inflammatory effect at these doses.

Next question

Explanation:

Atracurium is a non-depolarising neuromuscular blocker that is used to induce muscle relaxation and paralysis to facilitate intubation and controlled ventilation

Atracurium competes with acetylcholine for nicotinic (N2) receptor binding sites at the post-synaptic membrane of the neruomuscular junction. This prevents acetylcholine from stimulating the receptors. Because the blockade is competitive muscle paralysis occurs gradually.

The 'intubating' dose of atracurium is 0.3-0.6 mg/kg and subsequent doses are one-third of this amount. Satisfactory intubating conditions are produced within 90 seconds of administration. There is a linear relationship between the dose and the duration of action and atracurium is non-cumulative with repeated administration.

The duration of action of atracurium is prolonged by the following factors:

- Hypokalaemia
- Hypocalcaemia
- Hypermagnesaemia
- Hypoproteinaemia
- Dehyrdation
- Acidosis
- Hypercapnia

Histamine release may occur if doses >600 µg/kg are used. This can result in cutaneous flushing, hypotension and bronchospasm. Bradycardia has also been reported.

Explanation:

The diagnosis in this case is atrial fibrillation (AF), which seems to have started 3 weeks ago. This gentleman is over 65 and has a history of coronary artery disease, making him most suitable for a rate-control strategy for the management of his AF.

His past medical history makes him a high-risk patient and he should receive appropriate thromboprophylaxis and have warfarin initiated. For patients with a rate-control strategy the first line-drug should be a standard beta-blocker, such as bisoprolol, or a rate-limiting calcium channel blocker, such as diltiazem. A resting heart rate of less than 90 bpm should be targeted for established AF and less than 110 bpm for those with recent-onset AF.

The use of digoxin is now reserved for patients requiring further rate-control therapy or for patients with co-existing heart failure.

Amiodarone, sotalol and flecainide are generally used when a rhythm control strategy has been adopted. Flecainide is generally best avoided in elderly patients with a history of coronary artery disease.

Please refer to the NICE guidelines on atrial fibrillation: guidance.nice.org.uk

Next question

this question

Which SINGLE statement regarding the use of atropine is true?

Answer	Option	Question Statistics
	It is recommended in the treatment of haemodynamically stable bradycardias	33%
✖	It acts as an agonist to the action of acetylcholine	20%
	The ALS bradycardia algorithm recommends a maximum dose of 5 mg	3%
	It should be used routinely in the management of PEA cardiac arrest	7%
✔	It blocks the effects of the vagus nerve on both the SA and AV nodes	37%

Explanation:

Atropine antagonises the action of the parasympathetic neurotransmitter acetylcholine at muscarinic receptors. It therefore blocks the effects of the vagus nerve on both the SA node and the AV node, increasing sinus automaticity and facilitating AV node conduction.

The side effects of atropine are dose related and include:

- Dry mouth
- Nausea and vomiting
- Blurred vision
- Urinary retention
- Tachyarrhythmias

It can also cause acute confusion and hallucinations, particularly in elderly patients.

Atropine is indicated for sinus, atrial, or nodal bradycardia or AV block, when the haemodynamic condition of the patient is unstable because of the bradycardia.

The ALS bradycardia algorithm recommends a dose of 500 mcg IV if any of the following adverse features are present:

- Shock
- Syncope
- Myocardial ischaemia
- Heart failure

If this is unsuccessful further 500 mcg doses can be given at 3-5 minute intervals until a maximum dose of 3 mg is reached. Doses greater than 3 mg can cause paradoxical slowing of the heart rate.

Asystole during cardiac arrest is usually caused by primary myocardial pathology rather than excessive vagal tone and there is no evidence that routine use of atropine is beneficial in the treatment of asystole or PEA. For this reason it no longer forms part of the non-shockable part of the ALS algorithm.

Explanation:

Bendroflumethiazide is a thiazide diuretic that works by **inhibiting the Na/Cl co-transporter in the distal convoluted tubule**. This inhibits sodium reabsorption and results in increased urinary excretion of sodium, potassium and water.

Bendroflumethiazide is completely absorbed when administered orally and is approximately 95% protein bound in the plasma. It has a biological half-life of 3-4 hours and a duration of action of 12-18 hours.

The main use of bendroflumethiazide is in the management of hypertension but it also has a role in the treatment of heart failure and diabetes insipidus.

Common side effects of bendroflumethiazide include:

- Postural hypotension
- Electrolyte disturbance (hypokalaemia, hyponatraemia, hypercalcaemia)
- Impaired glucose tolerance
- Gout
- Impotence
- Fatigue

Rare side effects of bendroflumethiazide include:

- Thrombocytopenia
- Agranulocytosis
- Photosensitive rash
- Pancreatitis
- Renal failure

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Report this question

Bendroflumethiazide:

Score 0 of 1

Which SINGLE statement regarding bendroflumethiazide is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
	It works by inhibiting the Na/Cl co-transporter in the distal convoluted tubule	14%
✗	Postural hypotension is a common side effect	5%
✓	Hypocalcaemia is a common side effect	51%
	It can cause impaired glucose tolerance	8%
	It is a recognized cause of pancreatitis	21%

Explanation:

Tag

Report this question

Which of the following is the mechanism of action of bendroflumethiazide? Select ONE answer only.

Answer	Option	Question Statistics
✔	Inhibition of sodium reabsorption in the distal convoluted tubule	59%
	Inhibition of the Na/Cl co-transporter in the proximal convoluted tubule	17%
	Inhibition of the Na/K/2Cl symporter in the ascending loop of Henle	11%
✖	Creating an osmotic diuresis	3%
	Inhibition of the Na/K/2Cl symporter in the descending loop of Henle	10%

Explanation:

Bendroflumethiazide is a thiazide diuretic that works by **inhibiting the Na/Cl co-transporter in the distal convoluted tubule**. This inhibits sodium reabsorption and results in increased urinary excretion of sodium, potassium and water.

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Report this question

Benzodiazepine poisoning:

Score 0 of 1

A 19-year-old woman is brought in by ambulance having taken an overdose of her mother's diazepam tablets.

What is the SINGLE most appropriate initial drug treatment in this case?

Answer	Option	Question Statistics
	Flumazenil IV 400 mg	11%
	Flumazenil IV 20 µg	5%
✔	Flumazenil IV 200 µg	43%
	Flumazenil IV 200 mg	21%
✖	Flumazenil IV 0.5 mg	20%

Explanation:

Flumazenil is a specific benzodiazepine antagonist that can be useful in some cases. It acts rapidly (in less than 1 minute) but the effects are short-lived and last less than 1 hour. The dose is 200 µg every 1-2 minutes (max dose 3mg / hour).

Flumazenil should be avoided if the patient dependant on benzodiazepine or takes tricyclic antidepressants as it can precipitate a withdrawal syndrome in these patients. In these circumstances it can cause seizures or cardiac arrest.

Next question

Background

- Bifascicular block is the combination of RBBB with either LAFB or LPFB.
- Conduction to the ventricles is via the single remaining fascicle.
- The ECG will show typical features of RBBB plus either left or right axis deviation.
- RBBB + LAFB is the most common of the two patterns.
- Bifascicular block is a sign of extensive conducting system disease, although the risk of progressing to complete heart block is thought to be relatively low (1% per year in one cohort study of 554 patients).

NB. Some authors also consider LBBB to be a 'bifascicular block', because both fascicles of the left bundle branch are blocked

Main Causes

- Ischaemic heart disease (40-60% cases)
- Hypertension (20-25%)
- Aortic stenosis
- Anterior MI (occurs in 5-7% of acute AMI)
- Primary degenerative disease of the conducting system (Lenegre's / Lev's disease)
- Congenital heart disease
- Hyperkalaemia (resolves with treatment)

with COPD

Explanation:

Bisoprolol is a cardioselective beta-blocker that selectively blocks b_1 adrenergic receptors. It is commonly used in the management of hypertension, atrial fibrillation (for which it is now first-line therapy), and heart failure.

It has good oral bioavailability and peak plasma concentrations occur within 2 to 4 hours of administration. Its plasma half-life is 9-12 hours.

Bisoprolol is an effective and safe antihypertensive medication and has a stronger antihypertensive effect than propranolol and metoprolol.

Bisoprolol can be used in patients with COPD due to its b_1 selectivity, although it should be used with caution.

The CIBIS-II study showed that bisoprolol reduced mortality in all NYHA grades of heart failure.

Next question

Explanation:

This patient has a bradycardia caused by a 2:1 fixed ratio block. Fixed ratio blocks occur when there is a 2nd degree heart block with a fixed ratio of P waves to QRS complexes. In this case there is a 2:1 block as there are two P waves for every one QRS complex.

Fixed ratio blocks can be due to either Mobitz I or Mobitz II atrioventricular block. It is not always easy to determine which of these is the underlying cause of the fixed ratio block but the QRS complex provides important clues.

Generally speaking:

- **Mobitz I conduction** usually produces narrow QRS complexes as the block is located at the level of the AV node. Mobitz I blocks tend to improve with atropine and have an overall more benign prognosis.
- **Mobitz II conduction** usually produces broad QRS complexes (often in the context of a pre-existing LBBB). These tend to be unresponsive to atropine and are more likely to progress to complete heart block or asystole.

Atropine is indicated for sinus, atrial, or nodal bradycardia or AV block, when the haemodynamic condition of the patient is unstable because of the bradycardia.

The ALS bradycardia algorithm recommends a dose of atropine 500 mcg IV if any of the following adverse features are present:

- Shock
- Syncope
- Myocardial ischaemia
- Heart failure

If this is unsuccessful further 500 mcg doses can be given at 3-5 minute intervals until a maximum dose of 3 mg is reached. Doses greater than 3 mg can cause paradoxical slowing of the heart rate.

Other interim measures suggested by ALS bradycardia algorithm include:

- Transcutaneous pacing
- Isoprenaline infusion 5 mcg/min
- Adrenaline infusion 2-10 mcg/minutes
- Alternative drugs (aminophylline, dopamine, glucagon, glycopyrrolate)

Explanation:

The ALS bradycardia algorithm recommends a dose of 500 mcg IV if any of the following adverse features are present:

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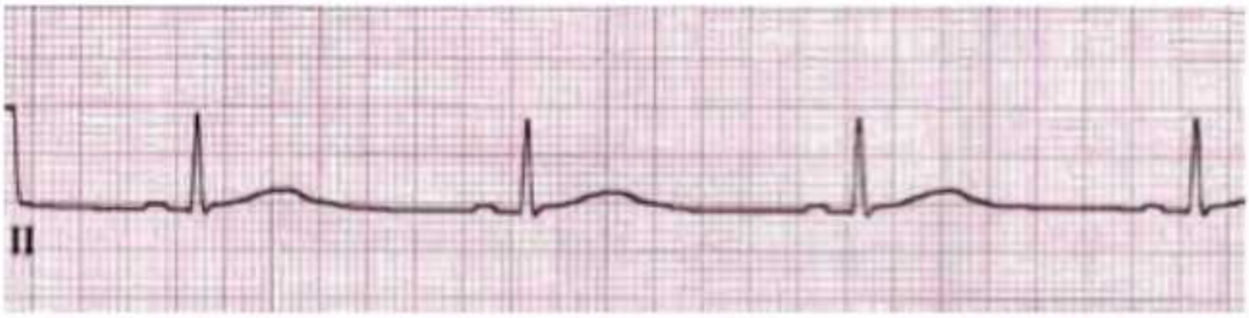
- Isoprenaline infusion 5 mcg/min
- Adrenaline infusion 2-10 mcg/minutes
- Alternative drugs (aminophylline, dopamine, glucagon, glycopyrrolate)

Glucagon is recommended if the bradycardia is caused by beta-blocker or calcium-channel blockers, and would therefore be the most appropriate choice in this case. The recommended dose is 2-10 mg IV in adults and 50-150 mcg/kg in children, followed by an intravenous infusion of 50 mcg/kg/hour.

Next question

A 40-year-old woman has taken an overdose of atenolol. She is clammy and hypotensive, with a blood pressure of 70/45 mmHg. She has been given three 500 mcg doses of atropine but remains bradycardic and dizzy. Her heart rate is between 35 and 40 bpm and her rhythm strip is shown below:



According to the ALS bradycardia algorithm which of the following would be the most appropriate next step in her management? Select ONE answer only.

Answer	Option	Question Statistics
	Give atropine 3 mg as an IV bolus	9%
	Give 1 mg IV bolus of adrenaline	13%
✖	DC synchonrised shock	13%
✔	Give glucagon 2 mg	62%
	Observe on a cardiac	2%

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Report this question

Treatment of respiratory infections:

Score 1 of 1

A 35-year-old woman presents with a fever, chills, headache, cough and shortness of breath. She also has a sore throat and has been experiencing intermittent episodes of epistaxis. She works at a local zoo in the aviary. On examination she has a reddish macular rash on her face, marked bilateral lower lobe crackles and splenomegaly.

Which of the following antibiotics would be the most appropriate to prescribe to this patient? Select ONE answer only.

Answer	Option	Question Statistics
	Ciprofloxacin	10%
	Co-amoxiclav	8%
	Amoxicillin	5%
✔	Doxycycline	40%

Explanation:

Cefuroxime and the other cephalosporin antibiotics are ß-lactam antibiotics and are **bactericidal**. Like the penicillins they produce their antimicrobial action by preventing cross-linkage between the linear peptidoglycan polymer chains that make up the bacterial cell wall. They therefore **inhibit cell wall synthesis**.

An overview of the different mechanisms of action of the various types of antimicrobial agents is shown below:

Mechanism of action	Examples
Inhibition of cell wall synthesis	Penicillins Cephalosporins Vancomycin
Disruption of cell membrane function	Polymyxins Nystatin Amphotericin B
Inhibition of protein synthesis	Macrolides Aminoglycosides Tetracyclines Chloramphenicol
Inhibition of nucleic acid synthesis	Quinolones Trimethoprim 5-nitroimidazoles Rifampicin
Anti-metabolic activity	Sulfonamides Isoniazid

Next question

The Centor Criteria are a set of criteria that were originally developed as a tool to identify the likelihood of group A beta haemolytic Streptococcus (GABHS) infection in adult patients complaining of a sore throat.

A study published in the BMJ in 2013 looked at whether they could be applied to children. As a consequence of this study the modified criteria were developed, which add in the patient's age and can be used to assess children over the age of 2. Scores may range from -1 to +5.

Patients are judged on the following criteria, with one point for each positive criterion:

- History of a fever (Temp > 38ºC)
- Exudate or swelling on tonsils
- Tender or swollen anterior cervical lymph nodes
- Absence of cough

The patient's age is scored as follows:

- 3-14 years = +1 point
- 15-44 years = 0 points
- > 45 years = -1 point

The score can then be used to guide management as follows:

- -1 to +1 points – no antibiotics or throat culture is necessary
- 2 to 3 points – patients should receive a throat culture and treat with an antibiotic if the culture is positive
- 4 to 5 points – patients should be treated empirically with antibiotics

This girl has a score of 4 points and should therefore be treated empirically with antibiotics. The current SIGN guidelines recommend a course of oral penicillin V (phenoxymethylpenicillin) for 10 days as the first choice antibiotic. For a child aged 9 the appropriate dose would be 250 mg of penicillin. Erythromycin is suitable alternative for patients with a penicillin allergy.

The SIGN guidelines for the management of sore throat and indications for tonsillectomy

Ibuprofen	34%
Nitrofurantoin	12%

Explanation:

Isoniazid can cause an acute, dose-dependant, hepatitis but it is not a recognised cause of cholestatic jaundice.

Drugs which cause cholestatic jaundice include:

- Nitrofurantoin
- Erythromycin
- Cephalosporins
- Verapamil
- NSAIDs
- ACE inhibitors
- Tricyclic antidepressants
- Phenytoin
- Azathioprine
- Carbemazepine
- Oral contraceptive pills
- Diazepam
- Ketoconazole
- Tamoxifen

Next question

Explanation:

This girl has symptoms and signs consistent with a diagnosis of meningococcal septicaemia and she requires urgent antibiotic treatment.

In cases of penicillin allergy, but not anaphylaxis, a third generation cephalosporin, such as cefotaxime, may be given. In this case, however, she has a genuine history of anaphylaxis to penicillin.

Up to 10% of patients who are allergic to penicillin may have an adverse reaction to cephalopsorins, and in cases of true anaphylaxis to penicillins the BNF recommends the use of chloramphenicol under these circumstances.

Next question

Side effects of antibiotics.

Tag

Report this question

A 65-year-old man suffers a spontaneous rupture of his Achilles tendon following a course of antibiotics.

Which of the following antibiotics is MOST likely to be responsible? Select ONE answer only.

Answer	Option	Question Statistics
	Chloramphenicol	18%
✔	Ciprofloxacin	63%
	Doxycycline	11%
	Metronidazole	4%
	Co-amoxiclav	3%

Explanation:

Fluoroquinolones are a rare, but recognised cause of tendinopathy and spontaneous tendon rupture. Tendon disorders associated with fluoroquinolones have been estimated to occur at a rate of approximately 15 to 20 per 100,000 patients. They most commonly occur in patients over the age of 60.

It most commonly involves the Achilles tendon, but cases involving quadriceps, peroneus brevis, extensor pollicis longus, the long head of biceps brachii, and rotator cuff tendons have all also been reported. The precise pathophysiology is unknown but it is thought that the fluoroquinolone drug may impede collagen function and/or interrupt blood supply to the tendon.

Other risk factors associated with spontaneous tendon rupture include:

- Corticosteroid therapy
- Hypercholesterolaemia
- Gout
- Rheumatoid arthritis
- Long-term dialysis
- Renal transplantation

Next question

Explanation:

Standard analgesics are generally ineffective in the treatment of cluster headaches. They generally take too long to work and the headache will have dispersed by the time that the painkiller takes effect. The use of opioids, in particular, is not recommended as they may possibly make the headaches worse and long-term use is associated with dependency.

Subcutaneous sumitriptan at a dose of 6 mg is effective in most people within 10-15 minutes of administration. Sumitriptan is a triptan medication that works by agonizing the 5-HT receptor. This is thought to reduce the vascular inflammation associated with migraines and cluster headaches.

Zolmitriptan nasal spray is an effective alternative to sumitriptan injections. It is also a triptan drug but is often slower to take effect than SC sumitriptan.

High-flow oxygen can be used as an alternative therapy to sumatriptan

Octreotide administered subcutaneously has been demonstrated to be more effective than placebo in the treatment of acute attacks of cluster headache.

Next question

Tag

Report this question

Treatment of cluster headaches:

Score 1 of 1

Which of the following is NOT an effective treatment for cluster headaches? Select ONE answer only.

Answer	Option	Question Statistics
✔	Oral codeine phosphate	41%
	Zolmitriptan nasal spray	4%
	Subcutaneous sumitriptan	10%
	High-flow oxygen	13%

Tag

Report this question

Drug treatment of croup:

Score 0 of 1

A 2-year-old child is brought in to the paediatric area of your Emergency Department. She has a harsh, barking cough and stridor. The sister in charge of the area has requested that you prescribe oral dexamethasone as part of their croup management protocol.

According to the APLS guidelines what is the suggested maximum single dose of dexamethasone for croup? Select ONE answer only.

Answer	Option	Question Statistics
✖	6 mg	25%
	8 mg	15%
	15 mg	5%
✔	12 mg	41%
	10 mg	14%

Explanation:

No definite standard dose for the use of dexamethasone has currently been agreed in the UK. The APLS guidelines, however, recommend a dose of 150 mcg/kg, with a suggested maximum single dose of 12 mg.

Hypoglycaemia 33%

Explanation:

Hyperpyrexia and hypoglycaemia are seen more commonly in children than adults as a result of salicylate poisoning.

Other clinical features, that are seen in both adults and children, include:

- Nausea and vomiting
- Tinnitus
- Deafness
- Sweating and dehydration
- Hyperventilation
- Cutaneous flushing

Xanthopsia is associated with digoxin toxicity, not salicylate poisoning.

Next question

Report this question

Which of the following statements regarding digoxin is true? Select ONE answer only.

Answer	Option	Question Statistics
	Hyperkalaemia can predispose to digoxin toxicity	31%
	It is negatively inotropic	15%
✔	Therapeutic plasma levels are between 1.0-1.5 nmol/l	35%
	It has a half-life of 6 hours	1%
	It is the first line drug in the treatment of persistent and permanent atrial fibrillation	9%

Explanation:

Digoxin is a cardiac glycoside used in the treatment of atrial fibrillation and flutter and congestive cardiac failure. It acts by inhibiting the membrane Na/K ATPase in cardiac myocytes. This raises intracellular sodium concentration and increases intracellular calcium availability indirectly via Na/Ca exchange. The increase in intracellular calcium levels causes a positive inotropic effect and a negative chronotropic effect.

The therapeutic plasma levels of digoxin are usually between 1.0-1.5 nmol/l, although higher concentrations may be required and the value can vary between laboratories. The likelihood of toxicity rises dramatically at levels above 2 nmol/l.

Digoxin has a long plasma half-life of between 36 and 48 hours in patients with normal renal function. In patients with impaired renal function this can increase to up to 5 days.

Hypokalaemia, not hyperkalaemia, has a tendency to predispose to digoxin toxicity.

Digoxin is no longer widely used in the management of persistent and permanent atrial fibrillation. Beta-blockers or rate limiting calcium channel blockers are now the first line drugs.

Next question

Explanation:

Digoxin is a cardiac glycoside used in the treatment of atrial fibrillation and flutter and congestive cardiac failure. It acts by inhibiting the membrane Na/K ATPase in cardiac myocytes. This raises intracellular sodium concentration and increases intracellular calcium availability indirectly via Na/Ca exchange.
The increase in intracellular calcium levels causes a positive inotropic effect and a negative chronotropic effect.

The therapeutic plasma levels of digoxin are usually between 1.0-1.5 nmol/l, although higher concentrations may be required and the value can vary between laboratories. The likelihood of toxicity rises dramatically at levels above 2 nmol/l.

The features of digoxin toxicity include:

- Nausea and vomiting
- Diarrhoea
- Abdominal pain
- Confusion
- Tachyarrhythmias or bradyarrhythmias
- Xanthopsia (yellow-green vision)
- Hyperkalaemia (early sign of significant toxicity)

Potential precipitating factors include:

- Elderly patients
- Renal failure
- Myocardial ischaemia
- Hypokalaemia
- Hypomagnesaemia
- Hypercalcaemia
- Hypernatraemia
- Acidosis
- Hypothyroidism

Numerous drugs can also predispose to digoxin toxicity including:

- Spironolactone
- Amiodarone
- Quinidine
- Verapamil
- Diltiazem
- Drugs causing hypokalaemia e.g. thiazide and loop diuretics

Next question

Notes **Digitalis toxicity**

- it can potentiate by quinidin (Note quinid procain CI)
- it can cause QRS prolongation → ACIs
- plasma level is Not correlate to toxicity (Acute chron)
- Half life of digoxin about [48 hour] or (36)
- Digoxin positive inotropic & Renal excreted
- ↓Mg ↓K → ↑toxicity ← But ↑↑ Ca
- ↓T3 T4, Renal impairment (mainly excreted 85% by kidney)
- Amiodaron & BB, Ca chanel Block → ↑toxicity
- threputic range (1.3 – 2.6) toxicity level ≥2 or 2.6 nmol
- Reverse Tick indicate Digoxin therapy
- Digoxin toxicity may presented similar to Gastroenteritis
- Digoxin SE → (xanthopsia)
- Risk Factor For digoxin →
  - age > 65
  - male
  - underlying Heart disease
  - preexisting renal Failure

⊗ 85% unchanged in urine

toxicity Serum > 4 mg/L

- is (Not) First DOC in Permanent Atrial Fibrilat (BB)
- can cause SE (gynecomastia)
- Has narrow threputic window
- about Digbind → Immunoglobulin From sheep, Protein binding antibody, Should be used Severe toxicity, act by (Preventing) Binding to digoxin

[Sever case innnulipid]

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Explanation:

Digoxin is a cardiac glycoside that primarily works by inhibiting the Na+/K+ ATPase in the myocardium. This results in a slowing of the ventricular response and a positively inotropic effect. Digoxin is less commonly used than it used to be but is still used in the treatment of heart failure and atrial fibrillation.

Digoxin has a long half-life and maintenance doses need to be given only once daily. It should be monitored to ensure that the correct dosage is being given and to ensure that factors that can provoke toxicity (e.g. renal dysfunction and hypokalaemia) are not developing. Regular monitoring of plasma digoxin concentrations during maintenance treatment is not necessary once steady state has been achieved unless problems are suspected.

In atrial fibrillation the best monitor of response to treatment is the ventricular rate. A target range of 1.0-1.5 nmol/L should be aimed for but concentrations of 2 nmol/L may be required. The plasma concentration alone cannot indicate toxicity reliably, but the likelihood of toxicity rises dramatically at levels above 2 nmol/L. Hypokalaemia predisposes to digoxin toxicity and can be managed by co-administration of a potassium-sparing diuretic or potassium supplementation.

Next question

Distal convoluted tubule	4%
Descending loop of Henlé	14%

Explanation:

Loop diuretics act on the Na.K.2Cl co-transporter in the ascending loop of Henlé to inhibit sodium, chloride and potassium reabsorption. This prevents the generation of a hypertonic renal medulla and reduces the osmotic gradient that forces water to leave the collecting duct system. This has a powerful diuretic effect.

The following table summarises the mechanism of action of the different types of diuretic:

Diuretic	Mechanism of action
Loop diuretics e.g. furosemide, bumetanide	Act on the Na.K.2Cl co-transporters in the ascending loop of Henlé to inhibit sodium, chloride and potassium reabsorption.
Thiazide diuretics e.g. bendroflumethiazide, hydrochlorothiazide	Act on the Na.Cl co-transporter in the distal convoluted tubule to inhibit sodium and chloride reabsorption.
Osmotic diuretics e.g. mannitol	Increases the osmolality of the glomerular filtrate and tubular fluid, increasing urinary volume by an osmotic effect.
Aldosterone antagonists e.g. spironolactone	Acts in the distal convoluted tubule as a competitive aldosterone antagonist resulting in inhibition of sodium reabsorption and increasing potassium reabsorption.
Carbonic anhydrase inhibitors e.g. acetazolamide	Inhibits the enzyme carbonic anhydrase preventing the conversion of bicarbonate and hydrogen ions into carbonic acid. This reduces the availability of hydrogen ions and causes sodium and bicarbonate to remain in the renal tubule resulting in diuresis.

Next question

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Report this question

Dopamine:

Score 1 of 1

At low doses (1-5 µg/kg/min) dopamine mainly has which of the following effects? Select ONE answer only.

Answer	Option	Question Statistics
	Decreases venous return	4%
	Decreases coronary blood flow	4%
✔	Decreases renal vascular resistance	60%
	Increases systolic blood pressure	16%
	Causes peripheral vasoconstriction	17%

Omeprazole 25%

Furosemide 17%

Explanation:

Drugs that cause gynaecomastia include:

- Cimetidine
- Omeprazole
- Spironolactone
- Digoxin
- Furosemide
- Finasteride
- Some anti-psychotics.

Ranitidine dose not tend to cause gynaecomastia and in fact gynaecomastia caused by cimetidine has been shown to resolve when it has been substituted with ranitidine.

Finish

Tag

Report this question

Drugs used in bipolar affective disorder:

Score 0 of 1

You review a 40-year-old woman with bipolar affective disorder. She has developed a noticeable tremor and feels that the medication that she takes for this condition may be responsible.

Which of the following is the LEAST LIKELY responsible medication? Select ONE option only.

Answer	Option	Question Statistics
✔	Carbamazepine	21%
✖	Olanzapine	18%
	Quetiapine	15%
	Lithium	25%
	Sodium valproate	20%

Explanation:

Of the medications listed in this question the only one that does not commonly cause tremor is carbamazepine.

Postural tremor is the most common neurological side effect observed with sodium valproate. A resting tremor can also occur. Approximately 25% of patients taking sodium valproate are found to develop a tremor with 12 months of starting therapy.

The development of a fine hand tremor is very commonly seen with lithium prescribing. It is quoted as occurring in as many as 50% of patients during the first week of therapy. The tremor has a tendency to reduce over time and is only present in around 5% of patients that have been taking the medication for 2 years or longer.

Atypical antipyschotics, such as olanzapine and quetiapine, can also cause tremor and limb shakiness.

Report this question

Which of the following drugs is NOT associated with possible hyperpigmentation? Select ONE answer only.

Answer	Option	Question Statistics
✔	Azithromycin	51%
	Minocycline	9%
	Chloroquine	7%
	Chlorpromazine	20%
	Amiodarone	13%

Explanation:

Drugs that are commonly known to cause hyperpigmentation include:

- Chlorpromazine – grey pigmentation in sun-exposed parts of the body
- Psoralens
- Minocycline – blue/ black pigmentation of buccal mucosa and in scars
- Amiodarone – blue/grey pigmentation occurring in sun-exposed parts of the body
- Chloroquine - blue/grey pigmentation of face and arms

Gentamicin is an **aminoglycoside** antibiotic. Aminoglycoside antibiotics **bind to the 30S subunit** of the bacterial ribosome and inhibits binding of aminoacyl-tRNA and therefore **prevent initiation of protein synthesis**.

They also cause misreading of mRNA, so that non-functional proteins are synthesized. This last mechanism is unique to aminoglycosides, and may account for why they are **bactericidal** rather than bacteriostatic like the other protein synthesis inhibitors.

An overview of the different mechanisms of action of the various types of antimicrobial agents is shown below:

Mechanism of action	Examples
Inhibition of cell wall synthesis	Penicillins Cephalosporins Vancomycin
Disruption of cell membrane function	Polymyxins Nystatin Amphotericin B
Inhibition of protein synthesis	Macrolides Aminoglycosides Tetracyclines Chloramphenicol
Inhibition of nucleic acid synthesis	Quinolones Trimethoprim 5-nitroimidazoles Rifampicin
Anti-metabolic activity	Sulfonamides Isoniazid

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Enoxaparin:

Score 1 of 1

Which of the following is the machanism of action of enoxaparin? Select ONE answer only.

Answer	Option	Question Statistics
	Antagonsim of glycoprotein IIb/IIIa receptors	7%
	Inhibition of platelet ADP receptors	4%
	Inhibition of the synthesis of clotting factors II, VII, IX and X	7%
	Inhibition of cyclo-oxygenase	0%
✔	Activation of antithrombin III	81%

Explanation:

Enoxaparin is a low molecular weight heparin (LMWH) that binds to and activates the enzyme inhibitor antithrombin III in a similar manner to heparin. Antithrombin III forms a 1:1 complex with thrombin and inactivates it. The heparin-antithrombin III complex also inhibits factor Xa and some other proteases involved with clotting.

Next question

Explanation:

Entonox is a 50/50 mix of oxygen and nitrous oxide. Its main actions are analgesia and depression of the central nervous system. It is not known for certain how it works but it is postulated that it acts via the modulation of enkephalins and endorphins within the central nervous system.

Entonox takes approximately 30 seconds to act and continues for approximately 60 seconds after inhalation has ceased.

Entonox is stored in white or blue cylinders with blue and white shoulders. It has several uses including:

- As an adjuvant to general anaesthesia
- As an analgesic during labour
- As an analgesic during painful procedures

Recognized side effects of Entonox include:

- Nausea and vomiting (15% of patients)
- Dizziness
- Euphoria
- Inhibition of vitamin B12 synthesis

The following are contraindications to the use of entonox:

- Reduced conscious level
- Diving injury
- Pneumothorax
- Middle ear disease
- Sinus disease
- Bowel obstruction
- Documented allergy to Entonox
- Hypoxia
- Violent / disabled psychiatric patients

Press F11 to exit full screen

Explanation

Etomidate is a short acting carboxylated imidazole derivate that is primarily used for the induction of anaesthesia.

It is thought to act upon GABA type A receptors to modulate fast inhibitory synaptic transmission within the central nervous system.

The dose for induction of anaesthesia is 0.3 mg/kg. Following intravenous injection etomidate acts in 10-65 seconds and its duration of action is 6-8 minutes. Its effects are non-cumulative with repeated administration.

Etomidate is notable for its relative cardiovascular stability. It causes less hypotension than thiopental sodium and propofol during induction. It is also associated with rapid recovery without a hangover effect.

Etomidate is a potent inhibitor of steroidogenesis. Adrenal 11 beta-hydroxylase and cholesterol cleavage enzymes are inhibited by the drug, resulting in depression of cortisol and aldosterone synthesis for 24 hours after administration. Because of this adrenocortical suppression it should not be used for maintenance of anaesthesia.

Other adverse effects associated with the use of etomidate include:

- Nausea and vomiting
- Pain on injection (in up to 50%)
- Phlebitis and venous thrombosis
- Arrhythmias and heart block
- Hyperventilation
- Respiratory depression and apnoea
- Can cause both hypo- and hypertension
- Increased mortality in critically ill patients

Next question

Non-steroidal anti inflammatories (NSAIDs): Score 0 of 1

You review a patient with a knee injury and are considering prescribing him a non-steroidal anti inflammatory (NSAID) for pain relief.

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Which of the following statements regarding NSAIDs is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
✔	Side effects are less commonly seen with indomethacin than naproxen	41%
✖	It can take 21 days for full anti-inflammatory effect to become apparent	23%
	It can take 7 days for full analgesic effect to become apparent	15%
	Most NSAIDS act as non-selective inhibitors of the enzyme cyclo-oxygenase	9%
	Only approximately 60% of patients will respond to any given NSAID	12%

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Question SBA: #18236

SBAQ: Pharmacology

Tag

Report this question

Flecainide:

Score 1 of 1

Which SINGLE statement regarding flecainide is FALSE?

Answer	Option	Question Statistics
	It can cause interstitial lung disease	7%
	It increases all-cause mortality if used post-myocardial infarction	13%
	It can be used in the management of chronic neuropathic pain	17%
✔	It acts by blocking potassium channels in the heart	58%
	The adult oral dose is 100-200 mg 12-hourly	5%

Explanation:

Flecainide is a class Ic antiarrhythmic agent that acts by blocking the Nav1.5 sodium channel in the heart, thereby prolonging the cardiac action potential and slowing conduction of the cardiac impulse within the heart. It has a profound effect on conduction in accessory pathways, especially on retrograde conduction, and markedly suppresses ventricular ectopic foci.

Flecainide can be used in the treatment of many different arrhythmias including:

- Pre-excitation syndromes (e.g. Wolff-Parkinson-White)
- Acute atrial arrhythmias
- Ventricular arrhythmias

It has also been shown to be effective in the treatment of chronic neuropathic pain.
www.ncbi.nlm.nih.gov

The adult oral dose is 100-200 mg 12-hourly. Intravenously it may be administered as a bolus dose of 2 mg/kg over 10 minutes followed b an infusion of 1.5 mg/kg/hour for one hour, reducing to 0.25 mg/kg/hour.

Flecainide should not be alone in the treatment of atrial flutter. If used alone there is a risk of inducing 1:1 atrioventricular conduction, with a consequent paradoxical increase in ventricular rate.

Flecainide is indicated only in patients without structural heart disease for the prevention, rapid control, or short-term prophylaxis of supraventricular and ventricular arrhythmias. The CAST trial showed a significant increase in sudden cardiac death and all-cause mortality in patients post-myocardial infarction, where is tended to be pro-arrhythmic, and in patients with an ejection fraction of < 40%. circ.ahajournals.org

Recognized side effects of flecainide include:

- Reversible liver toxicity
- Dizziness/vertigo
- Nausea and vomiting
- Visual disturbance
- Parasthesiae
- Interstitial lung disease

Next question

Tag

Report this question

Flecainide:

Score 1 of 1

Which SINGLE statement regarding flecainide is true?

Answer	Option	Question Statistics
	It has an anti-arrhythmic effect when used post-myocardial infarction	17%
	It acts by opening sodium channels within the heart	13%
✔	It can be used in the management of pre-excitation syndromes	44%
	The adult oral dose is 100 mcg 12-hourly	10%
	It can be used alone in the treatment of atrial flutter with a 2:1 block	16%

Approximately 50%

8%

Explanation:

Corneal microdeposits are almost universally present (over 90%) in individuals taking amiodarone for longer than 6 months, especially at does greater than 400 mg/day. These deposits typically do not cause any symptoms but about 10% of patients complain of seeing a 'bluish halo'.

Amiodarone also has other effects on the eye, but these are much rarer occurring in only 1-2% of patients:

- Optic neuropathy
- Non-arteritic anterior ischaemic optic neuropathy (N-AION)
- Optic disc swelling
- Visual field defects (reversible on stopping treatment)

Next question

	Ampicillin	15%
	Penicillin V	11%
✔	Flucloxacillin	55%

Explanation:

The integrity of the **ß-lactam ring** is essential for antimicrobial activity. Many bacteria (including most staphylococci) are resistant to benzylpenicillin and phneoxymethylpenicillin because they produce enzymes (pencillinases, ß-lactamases) that open the ß-lactam ring.

Flucloxacillin is indicated in infections caused by penicillinase producing penicillin-resistant staphylococci. It is a semi-synthetic penicillin and is **resistant to penicillinase** because an isoxazolyl group sterically hinders access of the enzyme to the ß-lactam ring.

Next question

It can cause cardiac arrest in patient dependant on tricyclic antidepressants

20%

Explanation:

Flumazenil is a specific benzodiazepine antagonist that can be useful in some cases. It acts rapidly (in less than 1 minute) but the effects are short-lived and last less than 1 hour. The dose is 200 µg every 1-2 minutes (max dose 3mg / hour).

Flumazenil should be avoided if the patient dependant on benzodiazepine or takes tricyclic antidepressants as it can precipitate a withdrawal syndrome in these patients. In these circumstances it can cause seizures or cardiac arrest.

Next question

Tag

Report this question

Gastro-protection with NSAIDS:

Score 1 of 1

Which of the following scenarios would NOT prompt you to consider the co-prescription of a PPI for gastro-protection with NSAIDs? Select ONE answer only.

Answer	Option	Question Statistics
✔	Long-term use for chronic back pain in a patient aged 30	30%
	Co-prescription of prednisolone	10%
	Co-prescription of fluoxetine	28%
	Short-term prescribing in a patient aged 67	24%
	Long-term use for rheumatoid arthritis in a patient aged 30	7%

Explanation:

The current recommendations by NICE suggest that gastro-protection should be considered if patients have > 1 of the following:

- Using maximum recommended dose of an NSAID
- Aged 65 or older
- History of peptic ulcer or GI bleeding
- Concomitant use of medications that increase risk
  - Low dose aspirin
  - Anticoagulants
  - Corticosteroids
  - Anti-depressants including SSRIs and SNRIs
- Requirements for prolonged NSAID usage
  - Patients with OA or RA at any age
  - Long-term back pain if older than 45

It is suggested that if required, either omeprazole 20 mg daily or lansoprazole 15-30 mg daily, should be the PPIs of choice.

This patient is on 400 mg of ibuprofen TDS but the maximum recommended dose of ibuprofen is 2.4 g daily. Co-prescription of codeine, raised BMI and a family history of peptic ulceration would also not prompt gastro-protection.

A useful Clinical Knowledge Summary by NICE on this topic can be viewed here:
cks.nice.org.uk

Gentamicin is an **aminoglycoside** antibiotic. Aminoglycoside antibiotics **bind to the 30S subunit** of the bacterial ribosome and inhibits binding of aminoacyl-tRNA and therefore **prevent initiation of protein synthesis**.

They also cause misreading of mRNA, so that non-functional proteins are synthesized. This last mechanism is unique to aminoglycosides, and may account for why they are **bactericidal** rather than bacteriostatic like the other protein synthesis inhibitors.

Gentamicin is not absorbed orally and must be given by injection. It has a biological half-life of 2 hours and is renally excreted. Renal impairment results in accumulation and a greater risk of toxic side effects.

It is active against a wide range of Gram-negative and some Gram-positive organisms including:

- *Pseudomonas spp.*
- *Escherichia coli*
- *Klebsiella pneumoniae*
- Gram-positive *Staphylococci spp.*
- *Yersinia pestis*

Gentamicin should not be used for the treatment of infections caused by *Neisseria gonorrhoea*, *Neisseria meningitidis*, or *Legionella pneumophila* because of the risk of the patient going into shock from lipid A endotoxin release.

Explanation:

This patient has a classical presentation of temporal arteritis. Temporal arteritis, also known as giant cell arteritis (GCA), is a type of chronic vasculitis characterized by granulomatous inflammation in the walls of medium and large arteries. It usually affects people over 50 years of age.

Clinical features include:

- Headache
- Scalp tenderness
- Jaw claudication
- Amaurosis fugax or sudden blindness (typically unilateral).

Some patients also present with systemic features such as fever, fatigue, anorexia, weight loss, and depression.

It is associated with polymyalgia rheumatica (PMR) in 50% of cases (bilateral upper arm stiffness, aching, and tenderness; pelvic girdle pain).

Visual loss occurs early in the course of disease and, once established, it rarely improves.

Early treatment with high-dose corticosteroids is imperative to prevent further visual loss and other ischaemic complications. If GCA is suspected high-dose glucocorticosteroid treatment should be initiated immediately (40 - 60 mg prednisolone daily). An urgent referral for specialist evaluation (same day ophthalmology assessment for those with visual symptoms) and temporal artery biopsy should also be organised.

Explanation:

Hepatitis B vaccination isn't routinely available as part of the NHS vaccination schedule. It is only offered to those thought to be at increased risk of hepatitis B or its complications.

The Hepatitis B vaccine is a conjugate vaccine that contains a surface antigen of the hepatitis virus (HBsAg), on an aluminium adjuvant to increase immunogenicity. It is made via a recombinant DNA technique.

In adults and older children the preferred site of injection is the deltoid muscle. The anterolateral thigh is preferred in younger children. Gluteal injection is not recommended as reduced efficacy has been reported.

The standard regime is three primary doses (the initial dose, then further doses at one and six months later) with a booster at five years if still at risk. The accelerated regime for post-exposure prophylaxis is a vaccination at the time of exposure, then repeat doses at one and two months later.

Hepatitis B immunoglobulin can be given up to 7 days after high-risk exposure. Ideally immunoglobulin should be given within 12 hours but the BNF recommends use up to 7 days after exposure.

Next question

Tag

Report this question

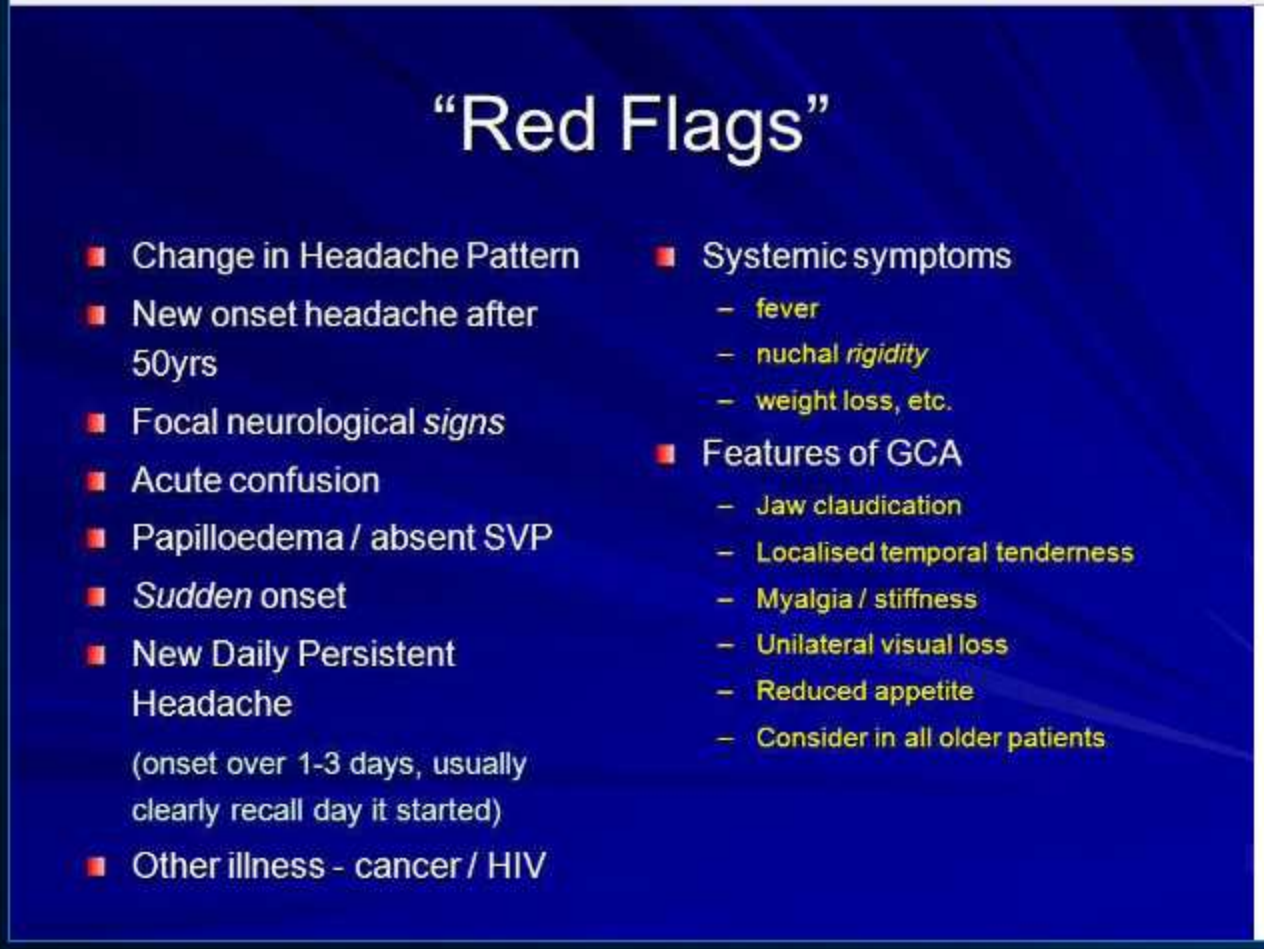
Hepatitis B prophylaxis:

Score 0 of 1

You undertake a consultation to counsel a healthcare professional about hepatitis B prophylaxis.

Which of the following statements regarding hepatitis B prophylaxis is true? Select ONE answer only.

Answer	Option	Question Statistics
✖	Hepatitis B immunoglobulin can be given up to 28 days after high-risk exposure	10%
	The preferred site of injection is the gluteal area in adults	3%
✔	An accelerated regime is available for post-exposure prophylaxis	45%
	The hepatitis B vaccine is a live attenuated vaccine	9%
	Hepatitis B vaccination is routinely offered as part of the NHS vaccination schedule	32%


"Red Flags"
Change in Headache Pattern
New onset headache after 50yrs
Focal neurological *signs*
Acute confusion
Papilloedema / absent SVP
Sudden onset
New Daily Persistent Headache
(onset over 1-3 days, usually clearly recall day it started)
Other illness - cancer / HIV
Systemic symptoms
– fever
– nuchal *rigidity*
– weight loss, etc.
Features of GCA
– Jaw claudication
– Localised temporal tenderness
– Myalgia / stiffness
– Unilateral visual loss
– Reduced appetite
– Consider in all older patients

Which of the following is the mechanism of action of heparin? Select ONE answer only.

Answer	Option	Question Statistics
	Inhibition of synthesis of factors I, III VII and VIII	10%
	Inhibition of synthesis of factors II, VII, IX and X	21%
	Inactivation of antithrombin II	10%
	Irreversible blockade of cyclo-oxygenase	3%
✔	Activation of antithrombin III	55%

Explanation:

Heparin binds to and activates the enzyme inhibitor antithrombin III. Antithrombin III forms a 1:1 complex with thrombin and inactivates it. The heparin-antithrombin III complex also inhibits factor Xa and some other proteases involved with clotting.

Question SBA: #13711

SBAQ: Pharmacology

Tag

Report this question

Impaired glucose tolerance:

Score 0 of 1

Which of the following medications is NOT associated impaired glucose tolerance? Select ONE answer only.

Answer	Option	Question Statistics
	Olanazapine	7%
	Prednisolone	4%
✔	Amlodipine	55%
✖	Bendroflumethiazide	8%
	Nicotinic acid	25%

Explanation:

Drugs associated with impaired glucose tolerance include:

- Thiazide diuretics e.g. bendroflumethiazide
- Loop diuretics e.g. furosemide
- Steroids e.g. prednisolone
- Beta-blockers e.g. atenolol
- Nicotinic acid
- Tacrolimus
- Ciclosporin

Calcium-channel blockers, such as amlodipine, are not associated with impaired glucose tolerance.

FLUID	mmol/l	mmol/l	mmol/l	mmol/l	mmol/l
Normal plasma values	142	4.5	26	103	2.5
0.9% Sodium Chloride	150	-	-	150	-
Compound Sodium Lactate (Hartmann's)	131	5	29	111	2
5% Glucose (1 L contains 50 g of dextrose)	-	-	-	-	-
0.3% Potassium Chloride and 5% Glucose	-	40	-	40	-
0.3% Potassium Chloride and 0.9% Sodium Chloride	150	40	-	190	-
1.26% Sodium Bicarbonate	150	-	150	-	-
4.5% Albumin (1 L contains 40-50 g of albumin)	< 160	< 2	-	136	-
4% Gelatin (Gelofusine)	154	< 0.4	-	120	< 0.4

Tag

Report this question

Composition of IV fluids: Score 1 of 1

0.3% Potassium Chloride and 5% Glucose solution contains which of the following constituents? Select ONE answer only.

Answer	Option	Question Statistics
	5 mmol/l K+	17%
	29 mmol/l HCO3-	6%
	131 mmol/l Na+	14%
✔	40 mmol/l Cl-	61%
	2 mmol/l Ca2+	2%

Explanation:

The following table summarises the relative constituent compositions of the commonly used IV fluid mixtures (values taken from the BNF):

FLUID	Na+ mmol/l	K+ mmol/l	HCO_3^- mmol/l	Cl- mmol/l	Ca^{2+} mmol/l
Normal plasma values	142	4.5	26	103	2.5
0.9% Sodium Chloride	150	-	-	150	-
Compound Sodium Lactate (Hartmann's)	131	5	29	111	2
5% Glucose (1 L contains 50 g of dextrose)	-	-	-	-	-
0.3% Potassium Chloride and 5% Glucose	-	40	-	40	-
0.3% Potassium Chloride and 0.9% Sodium Chloride	150	40	-	190	-
1.26% Sodium Bicarbonate	150	-	150	-	-
4.5% Albumin (1 L contains 40-50 g of albumin)	< 160	< 2	-	136	-
4% Gelatin (Gelofusine)	154	< 0.4	-	120	< 0.4

Next question

It causes decreased sympathetic tone

Explanation:

Ketamine is the only anaesthetic agent available that has analgesic, hypnotic, and amnesic properties. When used correctly it is a very useful and versatile drug.

Ketamine acts by non-competitive antagonism of the NMDA receptor Ca^{2+} channel pore and also inhibits NMDA receptor activity by interaction with the phenylcyclidine binding site.

Ketamine can be used intravenously and intramuscularly. The intramuscular dose is 10 mg/kg and when used by this route it acts within 2-8 minutes and has a duration of action of 10-20 minutes. The intravenous dose is 1.5-2 mg/kg administered over a period of 60 seconds. When used intravenously it acts within 30 seconds and has a duration of action of 5-10 minutes. Ketamine is also effective when administered orally, rectally, and nasally.

Ketamine causes tachycardia, an increase in blood pressure, central venous pressure and cardiac output, secondary to an increase in sympathetic tone. Baroreceptor function is well maintained and arrhythmias are uncommon.

The main disadvantage to the use of ketamine is the high incidence of hallucinations, nightmares, and other transient psychotic effects. These can be reduced by the co-administration of a benzodiazepine, such as diazepam or midazolam.

The main side effects of ketamine are:

- Nausea and vomiting
- Hypertension
- Nystagmus
- Diplopia
- Rash

Next question

Explanation:

Lidocaine is a tertiary amine that is primarily used as a local anaesthetic but can also be used in the treatment of ventricular dysrrhythmias.

Lidocaine works as a local anaesthetic by diffusing in its uncharged base form through neural sheaths and the axonal membrane to the internal surface of the cell membrane sodium channels. Here it alters signal conduction by blocking the fast voltage-gated sodium channels. With sufficient blockage, the membrane of the postsynaptic neuron will not depolarize and will be unable to transmit an action potential, thereby preventing transmission of pain signals.

Each 1 ml of plain 1% lidocaine solution contains 10 mg of lidocaine hydrochloride. The maximum safe dose of plain lidocaine is 3 mg/kg. When administered with adrenaline 1:200,000 the maximum safe dose is 7 mg/kg. Because of the risk of vasoconstriction and tissue necrosis, lidocaine should not be used in combination with adrenaline in extremities such as fingers, toes, and the nose.

The half-life of lidocaine is 1.5-2 hours. Its onset of action is rapid within a few minutes and it has a duration of action of 30-60 minutes when used alone. Its duration of action is prolonged by co-administration with adrenaline.

Lidocaine tends to cause vasodilatation. This is believed to be due mainly to the inhibition of action potentials via sodium channel blocking in vasoconstrictor sympathetic nerves.

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Lidocaine tends to cause vasodilatation. This is believed to be due mainly to the inhibition of action potentials via sodium channel blocking in vasoconstrictor sympathetic nerves.

Tag

Report this question

Lithium toxicity:

Score 0 of 1

A 29-year-old woman with ahistory of bipolar affective disorder presents with features of lithium toxicity.

Which of the following features is MOST likely to be present? Select ONE answer only.

Answer	Option	Question Statistics
✗	Reduced muscle tone	20%
✓	Clonus	56%
	SIADH	24%
	Lithium induced diabetes mellitus	0%
	Xanthopsia	0%

Explanation:

The following are features of lithium toxicity:

- Nausea and vomiting
- Diarrhoea
- Tremor
- Ataxia
- Confusion
- Increased muscle tone
- Clonus
- Nephrogenic diabetes insipidus
- Convulsions
- Coma
- Renal failure

Xanthopsia is most commonly seen with digoxin toxicity.

Next question

Explanation:

Macrolides antibiotics are **bacteriostatic**. They act by **binding to the 50S subunit** of the bacterial ribosome and **inhibit translocation** and therefore **inhibit protein synthesis**. Macrolide antibiotics are actively concentrated within leukocytes, and are therefore transported into the site of infection.

They are usually given orally, but **erythromycin** and **clarithromycin** can be given intravenously if necessary.

They have a similar antimicrobial spectrum to benzylpenicillin (i.e. narrow spectrum, mainly against **Gram-positive organisms**) and can be used as an alternative in patients with penicillin allergy.

Macrolide antibiotics are ineffective in meningitis because they do not adequately penetrate the central nervous system. Unlike penicillin, they are effective against several atypical organisms and can be used to treatment infections with *Mycoplasma pneumoniae* and *Legionella pneumophila*.

Next question

Explanation:

Metronidazole and the other 5-nitoimidazole agents **inhibit nucleic acid synthesis** by disrupting the DNA of microbial cells.

An overview of the different mechanisms of action of the various types of antimicrobial agents is shown below:

Mechanism of action	Examples
Inhibition of cell wall synthesis	Penicillins Cephalosporins Vancomycin
Disruption of cell membrane function	Polymyxins Nystatin Amphotericin B
Inhibition of protein synthesis	Macrolides Aminoglycosides Tetracyclines Chloramphenicol
Inhibition of nucleic acid synthesis	Quinolones Trimethoprim 5-nitroimidazoles Rifampicin
Anti-metabolic activity	Sulfonamides Isoniazid

Next question

Explanation:

NSAIDs are associated with a relatively high incidence of renal adverse drug reactions (ADRs). The principal mechanism by which these renal ADRs occur is due to changes in renal heamodynamics via changes in prostaglandin levels.

Prostaglandins normally cause vasodilatation of the afferent arteriole of the glomerulus, which preserves normal glomerular perfusion and glomerular filtration rate (GFR).

NSAIDs reduce prostaglandin levels, which causes unopposed vasoconstriction of the afferent arteriole and decreased renal plasma flow, this in turn causes a decreased GFR. NSAIDs have no effect, however, on the filtration fraction itself.

Next question

Use of non-steroidal anti-inflammatories (NSAIDs): Score 0 of 1

Which of the following statements regarding NSAIDs is true? Select ONE answer only.

Answer	Option	Question Statistics
	Co-prescribing a proton pump inhibitor would be unusual	5%
✔	Regular use of aspirin is associated with around a 20% increase in erectile dysfunction	26%
	Naproxen interacts with aspirin by antagonizing the irreversible platelet inhibition	21%
	Diclofenac is safe to prescribe in a patient that has had an MI a year ago	25%
✖	NSAIDs and COX-2 inhibitors vary greatly in their analgesic efficacy	24%

Explanation:

NSAIDs and COX-2 inhibitors are very similar in their analgesic properties, but vary more widely in their side-effect profiles.

NICE recommends adding in a proton pump inhibitor when prescribing NSAIDs.

All NSAIDs have been linked with an increased risk of death or recurrent MI and thus their prescribing should be very carefully considered in patients with a significant cardiac history.

Naproxen appears to be the safest NSAID with regards to cardiovascular side-effects, and it doesn't interact with aspirin.

Regular use of aspirin is associated with around a 20% increase in erectile dysfunction

Next question

Explanation:

Most NSAIDS act as non-selective inhibitors of the enzyme cyclo-oxygenase (COX), inhibiting both the COX-1 and COX-2 isoenzymes. COX catalyses the formation of prostaglandins and thromboxane from arachidonic acid. These in turn act as messenger molecules in the process of inflammation.

There is also considerable variance in how well the various NSAIDs are tolerated, but in generally side effects are lowest with Ibuprofen, then naproxen, then diclofenac then indomethacin. Therefore side effects are more commonly seen with indomethacin than naproxen.

Pain relief starts soon after the first dose but it can take a week to reach full analgesic effect. Only approximately 60% of patients will respond to any given NSAID. A clinically appreciable reduction in inflammation may not be apparent until 21 days of treatment. If no improvement is seen by 21 days, a different NSAID should be trialled.

Finish

Tag

Report this question

Use of non-steroidal anti-inflammatories (NSAIDs):

Score 0 of 1

A 63-year-old gentleman comes in to ask some advice about the best painkillers to take for his knee pain. He is known to have osteoarthritis. 6 months ago he had a transient ischaemic attack and was started on aspirin.

Which of the following medications would be LEAST suitable to recommend for him to take? Select ONE answer only.

Answer	Option	Question Statistics
✗	Topical NSAIDs	8%
	Celeboxib	35%
	Paracetamol	8%
✓	Ibuprofen	44%
	Topical capsaicin	5%

Explanation:

Aspirin is cardioprotective and its mechanism of action is due to irreversible platelet inhibition. Ibuprofen antagonizes this inhibition and thus can limit the cardioprotective effects that aspirin confers.

NICE recommends the use of paracetamol and/ or topical NSAIDs as a first line analgesic to try.

For hand and knee osteoarthritis they also recommend that topical capsaicin can be tried.

Celecoxib is a selective COX-2 inhibitor, thus inhibiting prostaglandin synthesis but having no effects on thromboxane and therefore will not interfere with the cardioprotective effects of aspirin.

Non-steroidal anti inflammatories (NSAIDs): Score 0 of 1

You review a patient with a knee injury and are considering prescribing him a non-steroidal anti inflammatory (NSAID) for pain relief.

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Which of the following statements regarding NSAIDs is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
✔	Side effects are less commonly seen with indomethacin than naproxen	41%
✖	It can take 21 days for full anti-inflammatory effect to become apparent	23%
	It can take 7 days for full analgesic effect to become apparent	15%
	Most NSAIDS act as non-selective inhibitors of the enzyme cyclo-oxygenase	9%
	Only approximately 60% of patients will respond to any given NSAID	12%

Explanation:

Opioid poisoning is a relatively common Emergency Department presentation. Overdose can be secondary to recreational drug (e.g. heroin) or as a consequence of prescribed opioids (e.g. morphine sulfate tablets, dihydrocodeine).

The clinical features of opioid overdose include:

- Reduced conscious level or coma
- Reduced respiratory rate
- Apnoea
- Pinpoint pupils
- Hypotension
- Cyanosis
- Convulsions
- Non-cardiogenic pulmonary oedema (with IV heroin usage)

The main cause of death secondary to opioid overdose is respiratory depression, which usually occurs within 1 hour of the overdose. Vomiting is also common and aspiration can occur.

Naloxone is the specific antidote for opioid overdose and will reverse respiratory depression and coma if given at sufficient dosage. The initial dose is usually 0.8 mg (2 mL) intravenously (the dose range suggested by BNF is 0.4-2 mg). It can also be given by intramuscular injection if the intravenous route is not feasible.

As naloxone has a shorter duration of action than most opioids, close monitoring and repeated injections are necessary according to the respiratory rate and depth of coma. The dose is generally repeated every 2-3 minutes to a maximum of 10 mg. When repeated doses are needed naloxone may be given by a continuous infusion adjusted according to the vital signs. Initially the infusion rate can be set at 60% of the initial resuscitative IV dose per hour.

In opioid addicts naloxone administration may precipitate a withdrawal syndrome with abdominal cramps, nausea and diarrhoea, but these usually settle within 2 hours.

Report this question

Which of the following can be used as an antidote for paracetamol overdose? Select ONE answer only.

Answer	Option	Question Statistics
	Glucagon	9%
	Desferrioxamine	6%
	Octreotide	4%
✔	Methionine	74%
	Fomepizole	6%

Explanation:

The mainstay of treatment of paracetamol overdose is acetylcysteine. Acetylcysteine is a very effective antidote but its effectiveness declines rapidly if started > 8 hours after a significant ingestion. All ingestions > 75 mg/kg are considered to be significant.

Methionine is a useful alternative in patients who refuse treatment. It is given orally 2.5 g every 4 hours to a total dose of 10 g.

Report this question

Which ONE of the following drugs is most likely to cause peripheral neuropathy as a side effect?

Answer	Option	Question Statistics
	Bisoprolol	1%
	Amiodarone	17%
✔	Isoniazid	76%
	Dexamethasone	3%
	Amlodipine	3%

Explanation:

Isoniazid is a first-line agent for the treatment of tuberculosis. One of the commonest side effects of isoniazid is **peripheral neuropathy**, which occurs in up to 20% of patients taking the drug at a dose of greater than 6 mg/kg daily.

Peripheral neuropathy occurs because isoniazid combines with pyridoxine (vitamin B6) to form hydrazone, which is subsequently excreted in the urine. This results in a **deficiency of biologically active pyridoxine** that results in a peripheral neuropathy.

The peripheral neuropathy of isoniazid can be prevented by the co-administration of pyridoxine at a dose of 10 mg for each 100 mg of isoniazid given. The administration of pyridoxine does not interfere with the antituberculous action of isoniazid.

Next question

Which of the following vaccinations are safe to administer to a pregnant patient? Select ONE option only.

Answer	Option	Question Statistics
	MMR vaccine	15%
	Anthrax vaccine	6%
	HPV vaccine	13%
	Varicella vaccine	24%
✔	Pertussis vaccine	42%

Explanation:

Pertussis vaccination is now recommended for pregnant patients due to the high complication rates of whooping cough in pregnancy.

The others are not recommended when pregnant and for full guidelines please go to: www.cdc.gov

Prescribing in epilepsy: Score 1 of 1

A 38-year-old female patient with epilepsy complains of feeling depressed. You notice that she has coarse facial features, gum hypertrophy and prominent facial acne. She also has an ataxic gait when she walks.

Which of the following anti-epileptic medications is most likely to be responsible for her presentation? Select ONE answer only.

Answer	Option	Question Statistics
	Levetiracetam	2%
	Carbamazepine	8%
✔	Phenytoin	72%
	Vigabatrin	2%
	Sodium valproate	16%

Amiodarone has many potential toxic side effects and a full and thorough clinical assessment prior to commencing therapy with it is essential.

Side effects associated with amiodarone include:

- Corneal microdeposits
- Photosensitivity
- Nausea
- Sleep disturbance
- Hyperthyroidism
- Hypothyroidism
- Acute hepatitis and jaundice
- Peripheral neuropathy
- Lung fibrosis
- QT prolongation

Optic neuritis is a very rare side effect of amiodarone. If it does occur then the amiodarone should be stopped immediately due to the risk of blindness.

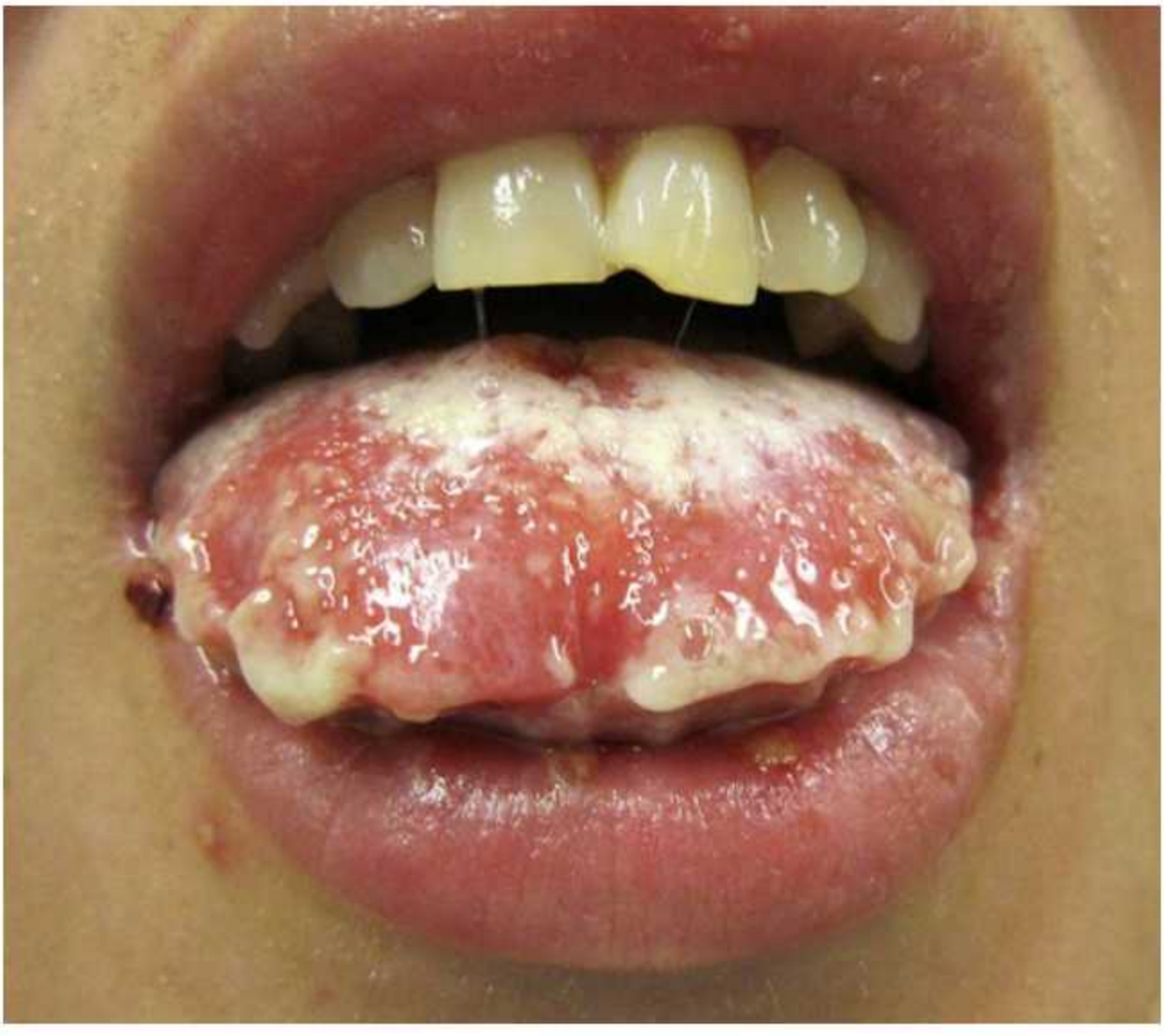
Most patients taking amiodarone develop corneal microdeposits, this reverses after treatment has been ceased and rarely interferes with vision.

Amiodarone chemically resembles thyroxine and can bind to the nuclear thyroid receptor. It can cause both hypothyoidism and hyperthyroidism, although hypothyroidism is far more common, occurring in 5-10% of patients.

Report this question

Side effects of tetracyclines: Score 1 of 1

A 26-year-old man develops a severe skin rash 2 weeks after being prescribed doxycycline. He initially felt generally unwell with a mild fever and flu-like symptoms. He subsequently developed a rash, which started as numerous 'target lesions' and has now progressed to severe bullous, ulcerating skin lesions with areas of epidermal detachment. You estimate that the epidermal detachment is affecting 8% of his total body surface area. He has severe mouth and tongue ulceration, which is shown in the photo below.



Which of the following is the SINGLE MOST likely

Explanation:

Stevens-Johnson syndrome is a severe and potentially fatal form of erythema multiforme. It can be caused by anything that causes erythema multiforme but is most frequently seen as a drug reaction 1-3 weeks after initiation. There is often an initial prodrome with constitutional symptoms such as fever, malaise, arthralgia and gastrointestinal upset followed by the appearance of severe mucocutaneous lesions, which are bullous and ulcerating.

Stevens-Johnson syndrome and toxic epidermal necrolysis are considered to be a single mucocutaneous disease with an increasing severity. They can be differentiated by the degree of epidermal detachment seen. In Stevens-Johnson syndrome epidermal detachment is seen in less than 10% of the body surface area, whereas in toxic epidermal necrolysis epidermal detachment is seen in greater than 30% of the body surface area. An overlap syndrome exists when detachment is between 10-30% of the body surface area

Drugs that can cause Stevens-Johnson syndrome and toxic epidermal necrolysis include:

- Tetracyclines
- Penicillins
- Vancomycin
- Sulphonamides
- NSAIDs
- Barbiturates

Explanation:

Hereditary angioedema is caused by a deficiency of C1 esterase inhibitor, a protein that forms part of the complement system. It is usually inherited in an autosomal dominant fashion.

Symptoms usually begin in childhood and occur sporadically throughout adult life. Attacks can be precipitated by minor surgical and dental procedures and stress. The main clinical features of hereditary andioedema are oedema of the skin and mucous membranes. The most commonly affected areas are the face, tongue and extremities. There is often a prodrome of tingling and it is sometimes preceded by a non-pruritic rash.

Angioedema and anaphylaxis due to C1 esterase inhibitor deficiency is resistant to adrenaline, steroids and antihistamines and needs treatment with C1 esterase inhibitor concentrate or fresh frozen plasma, which contains C1 esterase inhibitor.

Short-term prophylaxis for situations that may precipitate an attack can be achieved with C1 esterase inhibitor or fresh frozen plasma infusions prior to the event.

Long-term prophylaxis can be achieved with androgenic steroids such as stanozolol or antifibrinolytic drugs such as tranexamic acid.

Hereditary angioedema: Score 1 of 1

You review a 45-year-old woman with a history of hereditary angioedema.

Which ONE of the following can be used in the long-term prophylaxis of this condition?

Answer	Option	Question Statistics
	Fexofenadine	11%
	Mefenamic acid	3%
✔	Tranexamic acid	24%
	C1 esterase inhibitor	45%
	C1 esterase	17%

Question SBA: #26351

SBAQ: Pharmacology

Tag

Report this question

Proton pump inhibitors:

Score 0 of 1

You see a 42-year-old women with epigastric pain. Her only medication is omeprazole, which she has been taking for 6 months.

Which SINGLE statement regarding proton pump inhibitors is true?

Answer	Option	Question Statistics
✔	They are associated with a risk of low serum magnesium levels	46%
	They are effective in the treatment of gastric ulcers but not duodenal ulcers	3%
	They are associated with an increased risk of pelvic fracture	15%
✖	IV PPIs should be given for peptic ulcer bleeding in preparation for endoscopy	31%
	The proton pump is the first stage in gastric acid secretion	4%

Question SBA: #18501

SBAQ: Pharmacology

Tag

Report this question

Entonox:

Score 1 of 1

Which SINGLE statement regarding Entonox is true?

Answer	Option	Question Statistics
	It is stored in red and blue cylinders	6%
✔	It can cause inhibition of vitamin B12 synthesis	51%
	It is a 75/25 mix of oxygen and nitrous oxide	17%
	It can be used for the sedation of violent and disturbed patients	13%
	It continues to work for approximately 10 minutes after inhalation has ceased	12%

Explanation:

Proton pump inhibitors act by blocking the hydrogen/potassium ATPase enzyme system of the gastric parietal cells. The proton pump is the terminal stage in gastric acid secretion and this makes the proton pump an ideal target for inhibiting acid secretion.

The outcome is similar with both oral and intravenous PPI use and there is no appreciable benefit for using the intravenous formulation in patients that can tolerate oral medication.

Long-term PPI use has been associated with an increased risk of hip, wrist and spine fractures, but not pelvic fractures.

There is an increased risk of both *Clostridium Difficile* infection and community-acquired pneumonia with PPI usage. It is suspected that acid suppression caused by PPI usage results in poor elimination of pathogenic organisms leading to increased infection risk.

Next question

Explanation:

The current recommendations by NICE suggest that gastro-protection should be considered if patients have > 1 of the following:

- Using maximum recommended dose of an NSAID
- Aged 65 or older
- History of peptic ulcer or GI bleeding
- Concomitant use of medications that increase risk
  - Low dose aspirin
  - Anticoagulants
  - Corticosteroids
  - Anti-depressants including SSRIs and SNRIs
- Requirements for prolonged NSAID usage
  - Patients with OA or RA at any age
  - Long-term back pain if older than 45

It is suggested that if required, either omeprazole 20 mg daily or lansoprazole 15-30 mg daily, should be the PPIs of choice.

A patient on 400 mg of ibuprofen TDS (the maximum recommended dose of ibuprofen is 2.4 g daily), co-prescription of codeine, raised BMI and a family history of peptic ulceration would all not prompt gastro-protection.

A useful Clinical Knowledge Summary by NICE on this topic can be viewed here:
cks.nice.org.uk

Next question

Tag

Report this question

You are asked to review a 51-year-old gentleman who has presented with abdominal pain. His GP had previously prescribed omeprazole for symptoms of reflux.

The use of proton pump inhibitors is associated with which of the following? Select ONE answer only.

Answer	Option	Question Statistics
	Pelvic fracture	14%
	Bradyarrhythmias	4%
✔	Clostridium Difficile infection	70%
	Hypernatraemia	3%
	Hypermagnesaemia	10%

Explanation:

Proton pump inhibitors inhibit gastric acid secretion by blocking the hydrogen-potassium ATP enzyme system of the gastric parietal cell (the 'proton pump'). The proton pump is the terminal stage in gastric acid secretion and this makes it an ideal target for inhibiting acid secretion.

They are effective short-term treatments for both gastric and duodenal ulcers, and are also used in combination with antibacterials for the eradication of Helicobacter pylori. They can also be used for the treatment of dyspepsia and gastro-oesophageal reflux disease (GORD), and for the prevention and treatment of NSAID-associated ulcers.

Following endoscopic treatment of severe peptic ulcer bleeding, high-dose PPI therapy reduces risk of re-bleeding and surgery. There is, however, no difference in outcome between oral and IV usage prior to endoscopy. The current SIGN guidelines recommend that PPIs should not be used prior to endoscopic therapy when early endoscopic examination is performed within 24 hours of admission.

Common side effects of PPIs include:

- Nausea and vomiting
- Abdominal pain
- Flatulence
- Diarrhoea
- Constipation
- Headache

They are associated with an increased risk of *Clostridium Difficile* infection: http://www.ncbi.nlm.nih.gov/pubmed/25116712

There is also epidemiological evidence of increased fracture risk with long-term PPI usage. Observational studies have shown a modest association with hip, wrist and spine fractures. There is, however, no associated increase risk of pelvic fracture. The MHR advises that patients at risk of osteoporosis that take PPIs maintain an adequate intake of calcium and vitamin D for this reason.

PPIs have been shown to be associated with a significant risk of focal tachyarrhythmias: PPI-associated-risk-focal-arrhythmias

The US FDA have highlighted a risk of low serum magnesium and low sodium levels in patients taking PPIs long-term: http://www.fda.gov/Drugs/DrugSafety/ucm245011.htm

Report this question

Propofol: Score 0 of 1

Which SINGLE statement regarding propofol is true?

Answer	Option	Question Statistics
✗	It is thought to work by inhibiting GABA and glycine	19%
	It increases systemic vascular resistance	3%
✓	It decreases cardiac output by approximately 20%	51%
	75% of patients experience pain on injection	21%
	It has positively inotropic effects	5%

Explanation:

Explanation:

Propofol (2,6-diisopropylphenol) is a short acting phenol derivative that is primarily used for the induction of anaesthesia.

Its mechanism of action is unclear but is thought to act by potentiating the inhibitory neurotransmitters GABA and glycine, which enhances spinal inhibition during anaesthesia.

The dose for induction of anaesthesia is 1.5-2.5mg/kg. The dose for maintenance of anaesthesia is 4-12 mg/kg/hour. Following intravenous injection propofol acts within 30 seconds and its duration of action is 5-10 minutes.

Propofol produces a 15-25% decrease in blood pressure and systemic vascular resistance without a compensatory increase in heart rate. It is negatively inotropic and decreases cardiac output by approximately 20%.

The main side effects of propofol are:

- Pain on injection (in up to 30%)
- Hypotension
- Transient apnoea
- Hyperventilation
- Coughing and hiccough
- Headache
- Thrombosis and phlebitis

Explanation:

Numerous drugs are associated with exacerbating psoriasis, including the following:

- Beta-blockers (e.g. atenolol, propranolol)
- Lithium
- Antimalarials (e.g. chloroquine, hydroxychloroquine)
- NSAIDs (e.g. indomethacin, naproxen)
- ACE inhibitors (e.g. ramipril, captopril)
- Quinidine
- Terbinafine
- Benzodiazepines (e.g. diazepam, temazepam)

Paracetamol is not associated with exacerbating psoriasis.

Next question

Pharmacology – FRCEM SBAQ – 30

SBAQ: Pharmacology

Question SBA: #14061

Tag

Report this question

Salicylate poisoning:

Score 0 of 1

Which of the following should NOT form part of the management of severe salicylate poisoning that presents within 1 hour of overdose? Select ONE answer only.

Answer	Option	Question Statistics
	Gastric lavage	18%
	Aggressive intravenous fluid resuscitation	10%
✔	Forced alkaline diuresis	46%
	Activated charcoal	5%
✖	1.26% sodium bicarbonate administration	21%

Common clinical features include:

- Nausea and vomiting
- Tinnitus
- Deafness
- Sweating and dehydration
- Hyperventilation
- Cutaneous flushing
- Hyperpyrexia (particularly children)

Severe poisoning can cause convulsions, cerebral oedema, coma, renal failure, non-cardiogenic pulmonary oedema and cardiovascular instability.

Arterial blood gas typically shows a respiratory alkalosis early in the course of the overdose due to hyper-stimulation of the respiratory centre. A raised anion gap metabolic acidosis can occur later in the overdose, especially in moderate to severe overdose, due to increased protons in the blood.

Treatment involves stabilization of the ABCs as necessary, limiting absorption, enhancing elimination, correcting metabolic abnormalities, and providing supportive care. No specific antidote is available for salicylates.

Gastric lavage and activated charcoal (50 g) are indicated if greater than 4.5 g has been ingested in the previous hour (or > 2 g in a child). Activated charcoal both reduces absorption and increases elimination of salicylate.

Investigations should include:

- Plasma salicylate level
- Arterial blood gas
- ECG
- Blood glucose level
- Urea and electrolytes
- Clotting profile

ECG abnormalities that can be present include:

- Widening of the QRS complex
- AV block
- Ventricular arrhythmias

Poisoning can be classified as mild, moderate or severe depending upon the plasma salicylate level:

- Mild poisoning = < 450 mg/L
- Moderate poisoning = 450-700 mg/L
- Severe poisoning = > 700 mg/L

Severe cases usually require aggressive intravenous fluids to correct dehydration and 1.26% sodium bicarbonate administration, which increases elimination of the salicylate. The urine pH should be maintained at greater than 7.5 and ideally should be between 8.0-8.5. There is, however, no longer any role for forced alkaline diuresis. Life-threatening cases will require intensive care admission, intubation and ventilation and possibly haemodialysis.

Salicylate poisoning is a relatively common cause of poisoning and effective early treatment can prevent organ damage and death.

Common clinical features include:

- Nausea and vomiting
- Tinnitus
- Deafness
- Sweating and dehydration
- Hyperventilation
- Cutaneous flushing
- Hyperpyrexia (particularly children)

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ECG abnormalities that can be present include:

- Widening of the QRS complex
- AV block
- Ventricular arrhythmias

Explanation:

Erythromycin and the other macrolide antibiotics are **bacteriostatic.** They act by **binding to the 50S subunit** of the bacterial ribosome and **inhibit translocation** and therefore **inhibit protein synthesis.** Macrolide antibiotics are actively concentrated within leukocytes, and are therefore transported into the site of infection.

Erythromycin is orally active and can also be administered intravenously. It has a biological half-life of 1.5 hours and is metabolised in the liver and excreted in the bile.

It has a similar antimicrobial spectrum to benzylpenicillin (i.e. narrow spectrum, mainly against **Gram-positive organisms**) and can be used as an alternative in patients with penicillin allergy.

Erythromycin is ineffective in meningitis because it does not adequately penetrate the central nervous system. Unlike penicillin, it is effective against several atypical organisms and can be used to treatment infections with *Mycoplasma pneumoniae* and *Legionella pneumophila*.

Common side effects of erythromycin include:

- Nausea and vomiting
- Abdominal pain
- Diarrhoea

Rare side effects of erythromycin include:

- Prolongation of the Q interval
- Arrhythmias (including torsades de pointes)
- Reversible deafness
- Cholestasis
- Steven-Johnson syndrome
- Toxic epidermal necrolysis

Tag

Report this question

Erythromycin:

Score 0 of 1

Which SINGLE statement regarding erythromycin is true?

Answer	Option	Question Statistics
	It acts by binding to the 30S subunit of the bacterial ribosome	27%
✖	It can only be administered orally	22%
	It is renally excreted	10%
✔	It can be used to treat Legionnaire's disease	36%
	It can be used to treat meningitis	5%

Explanation:

Erythromycin and the other macrolide antibiotics are **bacteriostatic.** They act by **binding to the 50S subunit** of the bacterial ribosome and **inhibit translocation** and therefore **inhibit protein synthesis.**

Tag

Report this question

Meningitis:

Score 1 of 1

You review a 36-year-old lady whose daughter was recently admitted to a Paediatric Intensive Care Unit with meningococcal meningitis. She cared closely for her daughter in the period prior to her admission and is concerned about the possibility of her also contracting the disease. She is currently 22 weeks pregnant.

Which of the following antibiotics would be the MOST appropriate choice for chemoprophylaxis in her case? Select ONE answer only.

Answer	Option	Question Statistics
	Chloramphenicol 250 mg PO BD for 2 days	7%
✔	Ceftriaxone 250 mg IM	40%
	Rifampicin 600 mg PO BD for 2 days	28%
	Ciprofloxacin 500 mg PO	13%
	Penicillin V 500 mg QDS for 7 days	13%

✔	Ceftriaxone 250 mg IM	40%
	Rifampicin 600 mg PO BD for 2 days	28%
	Ciprofloxacin 500 mg PO	13%
	Penicillin V 500 mg QDS for 7 days	13%

Explanation:

For contacts of patients with *Neisseria meningitidis* meningitis the chemoprophylaxis agent of choice is rifampicin 600 mg PO BD for 2 days. A single oral dose of ciprofloxacin 500 mg may also be given.

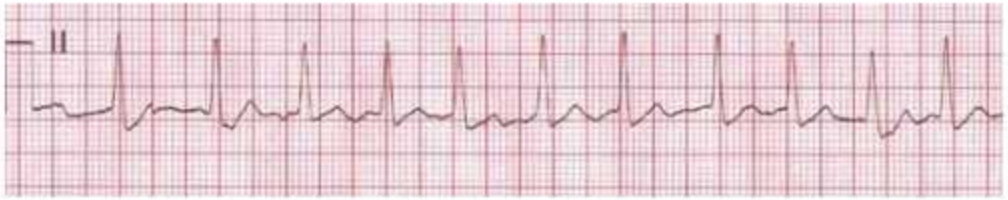
Rifampicin and ciprofloxacin are both contraindicated in pregnancy, however, and cannot be given in this case. The agent of choice in this case is therefore a single 250 mg dose of intramuscular ceftriaxone.

Next question

Management of palpitations:

Score 0 of 1

A 68-year-old man presents with a 3-week history of palpitations. His past medical history includes a myocardial infarction 2 years ago, hypertension and a previous transient ischaemic attack (TIA). His current medications are ramipril, metformin and aspirin. He has no known drug allergies and is a non-smoker. His initial observations are: HR Approximately 130 bpm (irregular), BP 145/90, temperature 36.9°C. His rhythm strip is shown below:



Which is the SINGLE most appropriate first-line drug for this patient to be given?

Answer	Option	Question Statistics
	Digoxin	10%
	Flecainide	1%
	Sotalol	4%
✖	Amiodarone	16%
✔	Bisoprolol	69%

Explanation:

The diagnosis in this case is atrial fibrillation (AF), which seems to have started 3 weeks ago. This gentleman is over 65 and has a history of coronary artery disease, making him most suitable for a rate-control strategy for the management of his AF.

His past medical history makes him a high-risk patient and he should receive appropriate thromboprophylaxis and have warfarin or a suitable alternative initiated. For patients with a rate-control strategy the first line-drug should be a standard beta-blocker, such as bisoprolol, or a rate-limiting calcium channel blocker, such as diltiazem. A resting heart rate of less than 90 bpm should be targeted for established AF and less than 110 bpm for those with recent-onset AF.

The use of digoxin is now reserved for patients requiring further rate-control therapy or for patients with co-existing heart failure.

Amiodarone, sotalol and flecainide are generally used when a rhythm control strategy has been adopted. Flecainide is generally best avoided in elderly patients with a history of coronary artery disease.

Please refer to the NICE guidelines on atrial fibrillation: www.nice.org.uk

Next question

Explanation:

The maximum safe dose of plain lidocaine is 3 mg/kg. When administered with adrenaline 1:200,000 the maximum safe dose is 7 mg/kg.

In this case the patient weighs 70 kg and the maximum safe dose is 70 x 7 mg, which equals 490 mg of plain lidocaine hydrochloride.

Next question

After the 4th shock	8%
Before the 2nd shock	7%
Before the 3rd shock	77%

Explanation:

Amiodarone should be given after the 3rd shock in a shockable (Vf/pVT) cardiac arrest during chest compressions. The dose is 300 mg as an IV bolus diluted in 5% dextrose to a volume of 20 mL.

A further dose of 150 mg should be given if VF/pVT persists after 5 defirbrillation attempts.

Amiodarone is not indicated for PEA or asystole.

Next question

Tag

Report this question

Drugs in cardiac arrest:

Score 0 of 1

You are called to a cardiac arrest in the resus area of your Emergency Department. The patient is in asystole.

Which SINGLE statement is true regarding the use of adrenaline in this arrest?

Answer	Option	Question Statistics
	It cannot be given if intravenous access is unavailable	1%
	10 mL of 1:1000 solution is an appropriate dose	6%
	Chest compressions should be interrupted for administration	1%
✗	It should be administered every 2-3 minutes	54%
✓	There is no evidence of long-term benefit from its use	38%

Explanation:

Adrenaline should be given as soon as circulatory access has been obtained in non-shockable (PEA/asystole) cardiac arrests. The dose is 1 mg (10 mL of 1:10,000 or 1 mL of 1:1000) via the IV or IO routes.

It should subsequently be given every 3-5 mins (i.e. alternate loops) and it should be given without interrupting chest compressions

Although there is no evidence of long-term benefit from its use in cardiac arrest, the improved short-term survival documented in some studies warrants its continued use.

Next question

Explanation:

Dopamine is a naturally occurring **catecholamine** that is used in the management of low cardiac output states, septic shock, and renal failure. It is the immediate precursor of both adrenaline and noradrenaline.

At **low doses (1-5 µg/kg/min)** dopamine acts upon D1 and D2 dopamine receptors in the renal, mesenteric and coronary beds. At these doses dopamine causes a marked decrease in renal vascular resistance and increases renal blood flow. It is also involved in the central modulation of behaviour and movement within this dose range.

At **higher dose ranges** dopamine acts via direct and indirect stimulation of beta- and alpha- adrenergic receptors. At an infusion rate of **5-10 µg/kg/min beta-stimulation predominates**, which results on a positive inotropic effect, increasing cardiac output and coronary blood flow.

At infusion rates **exceeding 15 µg/kg/min alpha-stimulation predominates**, which results in peripheral vasoconstriction, leading to an increase in venous return and systolic blood pressure.

There is a marked variability in clearance in critically ill patients, therefore plasma concentrations cannot be reliably predicted from infusion rates. It is inactivated by alkaline intravenous solutions and should not be infused with sodium bicarbonate solution.

Dopamine is **administered via an intravenous infusion** and because extravasation may result in sloughing and tissue necrosis a central line is generally preferred (particularly at higher doses > 240 µg/min). However in emergency cases dopamine may be given peripherally using a large vein (cephalic or basilic) while a central line is prepared.

The main side effects of dopamine are:

- Nausea and vomiting
- Tachycardia
- Dysrhythmias
- Angina
- Hypertension

Explanation:

The two most common electrolyte disturbances seen in patients taken thiazide diuretics are hyponatraemia (seen in approximately 13.7% of patients taking them) and hypokalaemia (seen in approximately 8.5% of patients taking them).

The following study provides a useful overview of this topic:
Thiazide diuretic prescription and electrolyte abnormalilities in primary care

Next question

Tag

Report this question

Meningococcal meningitis:

Score 1 of 1

An 8-year-old girl presented to her GP with a headache, neck stiffness and photophobia. Her observations were as follows: HR 124, BP 86/43, RR 30, SaO_2 95%, temperature 39.5°C. She has recently developed a petechial rash on her legs and arms. The GP administered a dose of antibiotics in the pre-hospital setting before the patient was transferred to the Emergency Department.

Which ONE of the following would the GP have administered?

Answer	Option	Question Statistics
✔	Give IM benzylpenicillin 600 mg	63%
	Give oral penicillin V 250 mg	3%
	Give oral penicillin V 500 mg	2%
	Give IM benzylpenicillin 300 mg	8%
	Give IM benzylpenicillin 1.2 g	24%

Give oral penicillin V 500 mg 2%

Give IM benzylpenicillin 300 mg 8%

Give IM benzylpenicillin 1.2 g 24%

Explanation:

If bacterial meningitis and especially if meningococcal disease is suspected General Practitioners are advised to give a single injection of benzylpenicillin by intravenous or intramuscular injection before transferring the patient urgently to hospital.

In children the following doses are recommended:

- Infants under 1 year: 300 mg
- Children ages 1 to 9 years: 600 mg
- Children aged 10 years and over 1.2 g

Next question

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Question Review
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Tag

Report this question

Management of hypertension:

Score 0 of 1

A 46-year-old Caucasian man has an average BP reading of 152/96 mmHg on ambulatory blood pressure monitoring (ABPM).

Which of the following would be the first-line drug treatment for this patient? Select ONE answer only.

Answer	Option	Question Statistics
✔	Ramipril	37%
	Bisoprolol	5%
	Amlodipine	40%
	Bendroflumethiazide	4%
✖	No medication is required at this stage	15%

Explanation:

According to the NICE care pathway for hypertension an ambulatory BP reading of > 150/95 is classed as stage 2 hypertension and the patient should be offered treatment with an anti-hypertensive drug. In a 46 year-old Caucasian man the most appropriate medication would be an ACE-inhibitor, such as ramipril or an ARB, such as losartan.

Tag

Report this question

Abciximab:

Score 0 of 1

Which SINGLE statement regarding abciximab is true?

Answer	Option	Question Statistics
	Major surgery within the past 6 months is a contraindication to its use	11%
	Intracranial surgery within the past year is a contraindication to its use	9%
✔	The platelet count should be checked 2-4 hours after starting treatment	32%
	It is a glycoprotein IIa/IIIb receptor antagonist	35%
✖	It is contraindicated in chronic renal insufficiency	13%

Question Review
Statistics
Account Settings
Free Study Guide

Tag

Report this question

Paracetamol: Score 0 of 1

Which SINGLE statement regarding paracetamol is true?

Answer	Option	Question Statistics
	Toxicity is primarily due to glutathione production	13%
✔	It is excreted renally	32%
✖	It has a half-life of 6-8 hours	17%
	It is primarily metabolized via the cytochrome p450 enzyme system	28%
	It is thought to work by selectively inhibiting COX-1 receptors in the brain and spinal cord	9%

Question SBA: #13671

Tag

Report this question

Hypoglycaemia:

Score 1 of 1

A 65-year-old man from a nursing home suffers an episode of collapse. His BM is measured and is discovered to be 2.2. He has a history of diabetes mellitus.

Which of the following is MOST likely to be responsible for his hypoglycaemic episode? Select ONE answer only.

Answer	Option	Question Statistics
	Sitagliptin	26%
	Acarbose	8%
	Glucagon	3%
	Metformin	14%
✔	Pioglitazone	48%

Explanation:

Of the medications mentioned in this question only pioglitazone is a recognised cause of hypoglycaemia. Glucagon is a treatment for hypoglycaemia and the others are antidiabetic medications that do not cause hypoglycaemia when used alone.

Tag

Report this question

Whooping cough:

Score 1 of 1

A 6-year-old boy is diagnosed as having whooping cough. There are two members of the household that are considered to be within a 'priority group' for post-exposure chemoprophylaxis.

Which of the following is the MOST appropriate antibiotic to be prescribed for this purpose? Select ONE answer only.

Answer	Option	Question Statistics
	Penicillin V	12%
	Co-amoxiclav	5%
	Ciprofloxacin	9%
✔	Erythromycin	58%
	Rifampicin	16%

Tag

Report this question

Calcium channel blockers:

Score 0 of 1

Which of the following statements regarding calcium channel blockers is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
✔	They can be used in the treatment of heart failure	31%
	They can be used to treat migraine	12%
	They are associated with an increased risk of cardiac events	17%
	They increase the risk of gastrointestinal bleeding	34%
✖	They commonly cause ankle oedema	6%

Explanation:

Calcium channel blockers prevent the movement of calcium into cells via the L-type calcium channel. This results in the relaxation of vascular smooth muscle in vessel walls and a resultant reduction in peripheral vascular resistance.

They have a variety of uses including:

- Hypertension
- Angina
- Atrial fibrillation
- Migraine

Short acting dihydropyridine calcium channel blockers have been shown to increase cardiac mortality and cardiac events in patients with coronary heart disease. This is not true of long acting calcium channel blockers.

Calcium channel blockers have been found to be moderately useful in the prevention of migraines. The best evidence is for this is with verapamil. This may be due to prevention of the arteriolar constriction that is associated with migraine. They are commonly used for this elsewhere in the world but are not currently licensed for this use in the UK.

Calcium channel blockers have a number of common side effects including:

- Constipation
- Flushing
- Headaches
- Ankle oedema
- Palpitations

Calcium channel blockers are also associated with an increased risk of gastrointestinal bleeding.

Question SBA: #13706

SBAQ: Pharmacology

Tag

Report this question

Medications in renal impairment:

Score 1 of 1

You review a 75-year-old woman with a history of hypertension and atrial fibrillation. Her most recent blood results reveal marked renal impairment.

Her current medications are as follows:

- Digoxin 250 mcg OD
- Atenolol 50 mg OD
- Aspirin 75 mg OD

Which medication changes should you initiate in this patient? Select ONE answer only.

Answer	Option	Question Statistics
	No medication changes are required	12%
	Stop aspirin	8%
	Increase dose of digoxin	1%
✔	Reduce dose of digoxin	71%
	Stop atenolol	7%

Explanation:

Digoxin is excreted renally and impaired renal function can cause increased digoxin levels and digoxin toxicity.

In this case the patient should have their digoxin dose reduced and their digoxin level and electrolytes should be carefully monitored.

Question SBA: #14076

SBAQ: Pharmacology

Tag

Report this question

Paracetamol:

Score 1 of 1

A 35-year-old man presents with a painful wrist injury following a fall onto his outstretched hand. You prescibe him paracetamol for analgesia.

Which SINGLE statement regarding paracetmol is FALSE?

Answer	Option	Question Statistics
	It has a biological half-life of 1-4 hours	7%
	It can be administered intravenously	3%
	It is a selective COX-3 inhibitor	46%
	An overdose of > 150 mg/kg body weight may cause severe liver damage	7%
✔	It causes liver toxicity by producing glutathione as a metabolite	38%

Explanation:

The main mechanism proposed is the inhibition of cyclo-oxygenase (COX). Paracetamol is thought to work by selectively inhibiting cyclo-oxygenase 3 (COX-3) receptors in the brain and spinal cord. COX-3 is responsible for the production of prostaglandins in these areas, which sensitizes free nerve endings to the chemical mediators of pain. Therefore by selectively inhibiting COX-3 paracetamol effectively reduces pain sensation.

Paracetamol can be administered orally, rectally, or intravenously. It has a bioavailability of 60-90% and is 10-25% protein bound. It is predominantly metabolized in the liver and has a biological half-life of 1-4 hours. It is 90% excreted in the urine.

Paracetamol overdose is the most common overdose in the U.K. and is also the commonest cause of acute liver failure. The liver damage is caused by a metabolite of paracetamol, *N*-acetyl-*p*-benzoquinoneimine (NAPQI), that depletes the livers stores of glutathione and directly damages liver cells. An overdose of greater than 12 g or > 150 mg/kg body weight may cause severe liver damage and death.

Tag

Report this question

You perform a medication review on a 62-year-old woman with a history of angina. She currently takes 10 mg bisprolol OD and GTN spray as required. Despite this she is still symptomatic.

Which of the following drugs should be avoided? Select ONE answer only.

Answer	Option	Question Statistics
	Aspirin	4%
	Nicorandil	6%
✔	Verapamil	71%
	Ranolazine	8%
✖	Isosorbide mononitrate	10%

Explanation:

Beta-blockers, such as bisoprolol, and verapamil are both highly negatively inotropic and when given together can depress ventricular contraction and cause marked bradycardia as well as increase the risk of AV block. In some circumstances this combination can cause severe hypotension or even asystole and the combination should be avoided.

Explanation:

According to the NICE care pathway for hypertension an ambulatory BP reading of > 150/95 is classed as stage 2 hypertension and the patient should be offered treatment with an anti-hypertensive drug. In a 55 year-old Caucasian man the most appropriate medication would be a calcium-channel blocker, such as amlodipine.

Please refer to the NICE guidelines on hypertension: www.nice.org.uk

Next question

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Question SBA: #26226

SBAQ: Pharmacology

Tag

Report this question

Adrenaline in cardiac arrest:

Score 0 of 1

A patient is bought into the resus area of your Emergency Department with a PEA cardiac arrest. You administer adrenaline.

Which of the following is an alpha-adrenergic effect of adrenaline? Select ONE answer only.

Answer	Option	Question Statistics
✖	Increased myocardial oxygen consumption	21%
	Negatively chronotropic effects	8%
	Systemic vasodilatation	10%
✔	Increased cerebral perfusion pressures	50%
	Increased post-cardiac arrest myocardial dysfunction	11%

Explanation:

The **alpha-adrenergic** effects of adrenaline cause systemic vasoconstriction, which increases coronary and cerebral perfusion pressures.

The **beta-adrenergic** effects of adrenaline are positively inotropic (increased myocardial contractility) and chronotropic (increased heart rate) and may increase coronary and cerebral blood flow. Concomitant increases in myocardial oxygen consumption and ectopic ventricular arrhythmias (particularly in the absence of acidaemia), transient hypoxaemia because of pulmonary arertiovenous shunting, impaired microcirculation, and increased post-cardiac arrest myocardial dysfunction may, however, offset these benefits.

Tag

Report this question

Anti-epileptic medications:

Score 1 of 1

A 40-year-old man with a history of epilepsy presents complaining of red, swollen gums.

Which of the following anti-epileptics is he MOST likely to be taking? Select ONE answer only.

Answer	Option	Question Statistics
	Topiramate	2%
	Levetiracetam	3%
✔	Phenytoin	73%
	Lamotrigine	5%
	Sodium valproate	17%

Explanation:

Phenytoin is a well-recognised cause of gum hypertrophy. It is thought to cause this due to a reduction in folate levels and evidence suggests that folic acid supplementation can prevent from occurring.

Other side effects that occur with phenytoin administration include:

- Megaloblastic anaemia
- Nystagmus
- Ataxia
- Hypertrichosis
- Pruritic rash
- Hirsutism
- Drug-induced lupus

✖ Anti-D is an IgM class antibody directed against the Rhesus D (RhD) antigen 19%

Explanation:

Anti-D is an IgG class antibody directed against the Rhesus D (RhD) antigen.

Anti-D is only given to RhD negative women. RhD negative women do not carry the RhD antigen on their RBC. If a fetus does carry the RhD antigen (i.e. is RhD positive) and the mother is exposed to fetal blood, she may form antibodies to RhD that pass through the placenta to attack fetal red cells (causing haemolytic disease of the newborn) in this or subsequent pregnancies. Anti-D is given to bind fetal red cells in the maternal circulation to neutralise them before an immune response is triggered.

RhD should be given in the event of a sensitising event. Potentially sensitising events include:

- Birth
- Antepartum haemorrhage
- Miscarriage
- Ectopic pregnancy
- Intrauterine death
- Amniocenetsis
- Chorionic villus sampling
- Abdominal trauma

It the event of a sensitising event occurring, the sooner anti-D is given the better, but it is maximally effective within 72 hours and the BNF states it is still likely to have some benefit if administered outside of this deadline.

Routine antenatal prophylaxis is recommended for RhD negative women at 28 and 34 weeks. This is irrespective of whether they have already received Anti-D earlier in the same pregnancy for a sensitising event.

Before 12 weeks gestation, confirmed by scan, in uncomplicated miscarriage (where the uterus is not instrumented), or mild painless vaginal bleeding, prophylactic anti-D is not necessary because the risk of feto-maternal haemorrhage (FMH) is negligible. However 250 IU of prophylactic anti-D immunoglobulin should be given in cases of therapeutic termination of pregnancy, whether by surgical or medical methods, to confirmed RhD negative women who are not known to be already sensitised to RhD.

Next question

✔	Clarithromycin 500 mg PO BD for 14 days	51%
	Doxycycline 100 mg PO OD for 7 days	8%
	Amoxicillin 500 mg PO TDS for 7 days	25%
	No treatment is required in this case	0%

Explanation:

This patient has symptoms and signs consistent with an atypical pneumonia, most likely secondary to *Mycoplasma pneumoniae* infection.

The clinical features of *Mycoplasma pneumoniae* infection include:

- Flu-like illness preceding respiratory symptoms
- Fever
- Myalgia
- Headache
- Diarrhoea
- Cough (initially dry but often becomes productive)
- Focal chest signs develop later in the illness

The X-ray features of the pneumonia are often more striking than the severity of the chest symptoms.

Mycoplasma pneumoniae can be treated with either macrolides, such as clarithromycin, or with tetracyclines, such as doxycycline. The minimum treatment period should be 10-14 days making option C preferable over option D in this question.

Next question

Tag
Report this question

Drug treatment of asthma:

Score 0 of 1

A 24-year-old man presents with a history of increased wheeze over the past 2 days. He suffers with hay fever in the summer months and this has been a worse than usual over recent weeks. When auscultating his chest you can hear scattered polyphonic wheezes. His peak flow at presentation was 275 L/min and his best ever peak flow is 500 L/min. After a single salbutamol nebuliser his peak flow improves to 455 L/min and he feels much better.

Which of the following would be the MOST appropriate next drug treatment? Select ONE answer only.

Answer	Option	Question Statistics
	Give oral chlorphenamine 4 mg	7%
✔	Give oral prednisolone 40 mg	58%
✖	Give a further salbutamol nebuliser	15%
	Give nebulised ipratropium bromide 0.5 mg	16%
	Start a course of oral amoxicillin	4%

Explanation:

This man has presented with an episode of acute asthma. His initial peak flow is 55% of his best and this is a moderate exacerbation.

Steroids should be administered in all cases of acute asthma and giving a dose of prednisolone 40-50 mg orally should be the next management step in this case.

Chest X-rays are not routinely indicated in the investigation of acute asthma but should be performed in the following situations:

- Suspected pneumomediastinum
- Suspected consolidation
- Life threatening asthma
- Failure to respond to treatment satisfactorily
- Requirement of ventilation

Nebulised ipratropium bromide should be added to treatment with nebulised salbutamol in patients with acute severe or life-threatening asthma or this with a poor response to salbutamol therapy. It is therefore not indicated in this case.

Although it would be reasonable to prescribe an antihistamine in a patient with a history of worsening hay fever it should not take precedence over treatments with steroids.

Next question

Tag

Report this question

Antacids: Score 0 of 1

Which of the following statements regarding antacids is true? Select ONE answer only.

Answer	Option	Question Statistics
	Aluminium hydroxide can be used in the treatment of hypophosphataemia	8%
	Magnesium carbonate tends to cause constipation	15%
	Aluminium hydroxide is relatively water-soluble	8%
✖	Aluminium hydroxide tends to have a laxative effect	18%
✔	Magnesium carbonate can reduce the absorption of drugs taken at the same time	52%

Explanation:

Aluminium hydroxide and magnesium carbonate are commonly used antacids. They are both relatively water insoluble and can both reduce the absorption of drugs taken at the same time. A minimum of 1-2 hours should be left between taking these antacids and any other drugs.

Aluminium hydroxide can also be used in the treatment of hyperphosphataemia in patients with renal failure as it reduces gastrointestinal phosphate absorption.

Aluminium hydroxide tends to cause constipation, whereas magnesium carbonate tends to have a laxative effect.

C1 esterase infusion	36%
IM adrenaline	15%

Explanation:

Hereditary angioedema is caused by a deficiency of C1 esterase inhibitor, a protein that forms part of the complement system. It is usually inherited in an autosomal dominant fashion.

Symptoms usually begin in childhood and occur sporadically throughout adult life. Attacks can be precipitated by minor surgical and dental procedures and stress. The main clinical features of hereditary angioedema are oedema of the skin and mucous membranes. The most commonly affected areas are the face, tongue and extremities. There is often a prodrome of tingling and it is sometimes preceded by a non-pruritic rash.

Angioedema and anaphylaxis due to C1 esterase inhibitor deficiency is resistant to adrenaline, steroids and antihistamines and needs treatment with C1 esterase inhibitor concentrate or fresh frozen plasma, which contains C1 esterase inhibitor.

Short-term prophylaxis for situations that may precipitate an attack can be achieved with C1 esterase inhibitor or fresh frozen plasma infusions prior to the event.

Long-term prophylaxis can be achieved with androgenic steroids such as stanozolol or antifibrinolytic drugs such as tranexamic acid.

Next question

	It can be used in the management of closed-angle glaucoma	4%
	It is orally active	0%
✔	It may be administered via an endotracheal tube	76%

Explanation:

Adrenaline (epinephrine) is a directly acting sympathomimetic amine that is an agonist of alpha- and beta-adrenergic receptors. It has approximately equal activity at both alpha- and beta receptors.

It is inactivated when administered orally. Absorption is slower after subcutaneous than intramuscular administration. It is well absorbed from the tracheal mucosa and may be administered via an endotracheal tube in cardiac arrest.

It is predominantly metabolized by catechol-O-methyltransferase (COMT) and monoamine-oxidase (MAO) at the adrenergic synapse. The inactive products are then excreted in the urine.

The IV dose in adult cardiac arrest is 1mg, which is 10mls of 1:10000 or 1 ml of 1:1000. The IM dose in anaphylaxis is 0.5ml of 1:1000 (500mcg).

Adrenaline is a mydriatic and is only suitable for use in the management of open angle glaucoma.

Next question

They are indicated in the long-term management of severe anxiety

Explanation:

Benzodiazepines enhance the effects of GABA resulting in sedative, hypnotic, anxiolytic, anticonvulsant and muscle relaxant properties.

Benzodiazepines are indicated in the short-term management of severe anxiety, long-term use should be avoided due to potential problems with tolerance, physical dependence and withdrawal syndrome.

Diazepam is a long-acting benzodiazepine with a half-life of 20-100 hours. Examples of short-acting benzodiazepines with a half-life of less than 12 hours include midazolam, oxazepam and alprazolam (Xanax).

Oral lorazepam 1-2 mg or IM lorazepam 2-4 mg are recommended for the emergency tranquilization of violent or disturbed patients.

The dose of lorazepam in paediatric status epilepticus is 0.1 mg/kg.

Next question

Tag

Report this question

Benzodiazepines:

Score 1 of 1

Which SINGLE statement regarding the use of benzodiazepines is true?

Answer	Option	Question Statistics
✔	Lorazepam is first-line drug of choice in the emergency tranquilization of violent or disturbed patients	51%
	Diazepam is a short-acting benzodiazepine	14%
	The dose of lorazepam in paediatric status epilepticus is 0.4 mg/kg	9%
	They inhibit the effects of the neurotransmitter gamma-aminobutyric acid (GABA)	21%
	They are indicated in the long-term management of severe anxiety	6%

Tag

Report this question

Analgesia and anaesthesia in the ED:

Score 1 of 1

Please refer to the following cylinder that you have found in the A&E 'resus' area:

	Salbutamol	2%
	Heliox	11%
✔	Nitrous oxide	74%
	Oxygen	9%
	Isoflurane	5%

Explanation:

Entonox is a 50/50 mix oxygen and nitrous oxide. Its main actions are analgesia and depression of the central nervous system. It is stored in white or blue cylinders with blue and white shoulders.

Image adapted from Wikipedia
Courtesy of Owain Davies CC BY-SA 3.0

Explanation:

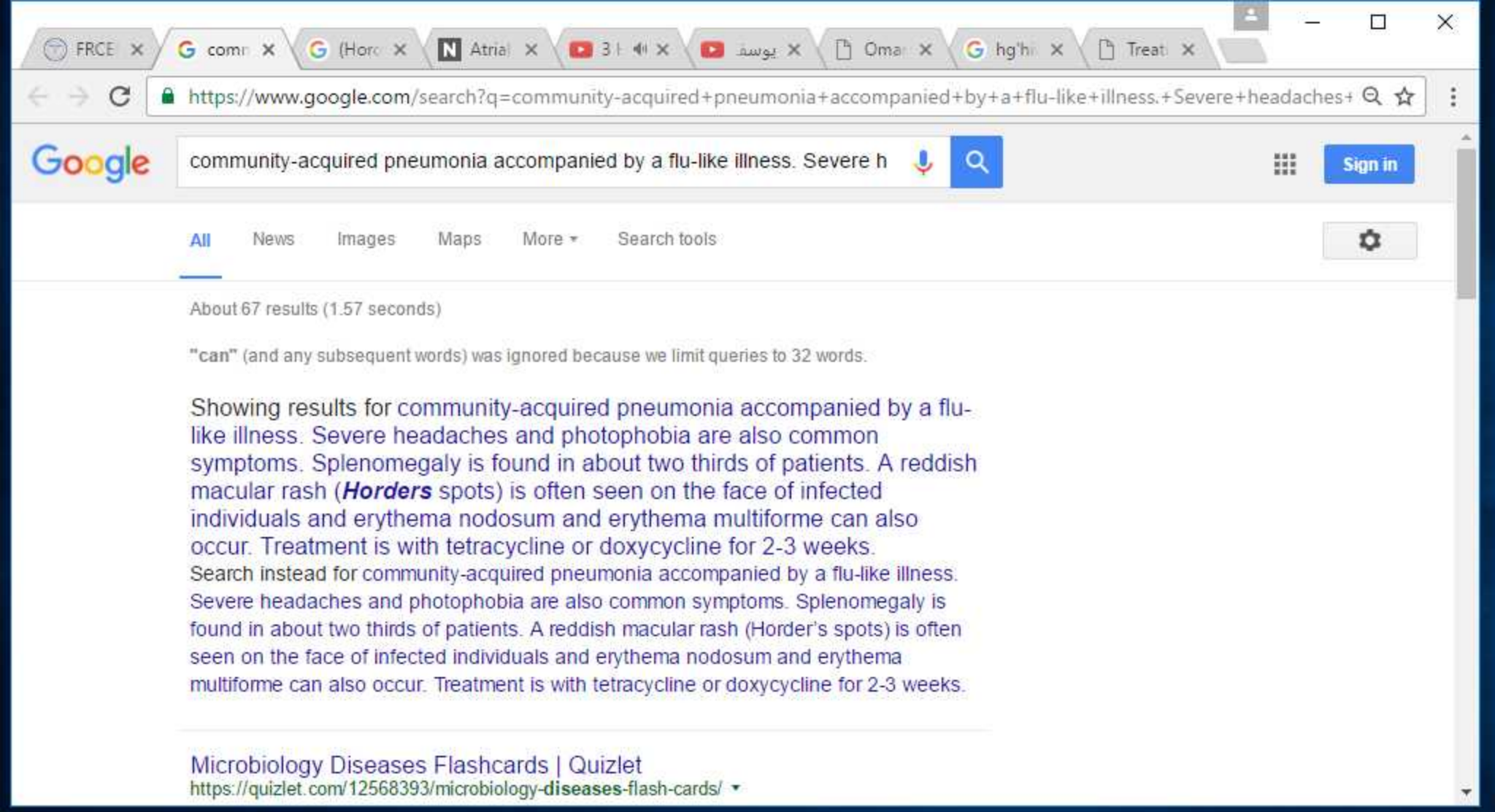
Psittacosis is a zoonotic infection caused by *Chlamydia psittica*. It most commonly occurs in domestic bird owners and also as an occupational disease in pet shop workers and zookeepers.

Classically it presents with a community-acquired pneumonia accompanied by a flu-like illness. Severe headaches and photophobia are also common symptoms. Splenomegaly is found in about two thirds of patients.

A reddish macular rash (Horder's spots) is often seen on the face of infected individuals and erythema nodosum and erythema multiforme can also occur.

Treatment is with tetracycline or doxycycline for 2-3 weeks.

Next question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"can" (and any subsequent words) was ignored because we limit queries to 32 words.
Showing results for community-acquired pneumonia accompanied by a flu-like illness. Severe headaches and photophobia are also common symptoms. Splenomegaly is found in about two thirds of patients. A reddish macular rash (Horders spots) is often seen on the face of infected individuals and erythema nodosum and erythema multiforme can also occur. Treatment is with tetracycline or doxycycline for 2-3 weeks.
Search instead for community-acquired pneumonia accompanied by a flu-like illness. Severe headaches and photophobia are also common symptoms. Splenomegaly is found in about two thirds of patients. A reddish macular rash (Horder's spots) is often seen on the face of infected individuals and erythema nodosum and erythema multiforme can also occur. Treatment is with tetracycline or doxycycline for 2-3 weeks.
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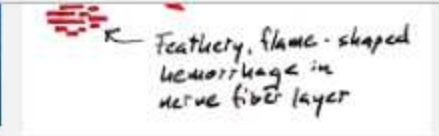
✔ Tachycardia 42%

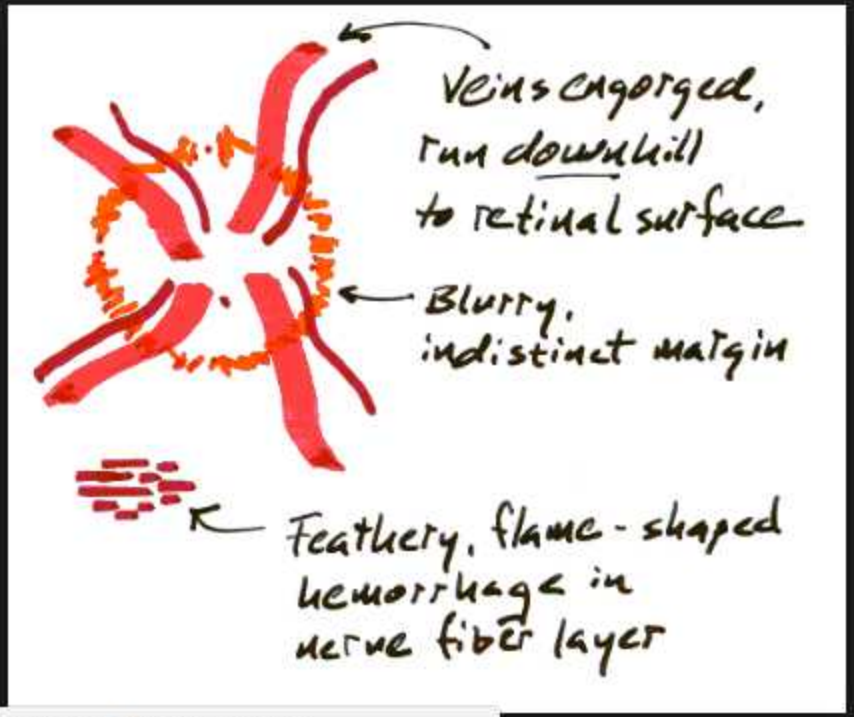
Explanation:

Recognized adverse effects of suxamethonium include:

- Bradycardia
- Hyperkalaemia
- Raised intracranial pressure
- Raised intraocular pressure
- Prolonged paralysis
- Anaphylaxis
- Malignant hyperthermia

Next question





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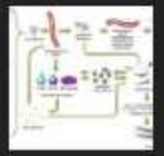


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✖	Lactulose	13%
	Sodium picosulphate	3%

Explanation:

In the presence of hard impacted faeces in the colon the most suitable initial treatment is a stool softener, such as glycerin suppositories. This can be followed with a phosphate enema once the stool has been suitably softened.

After a successful bowel motion the patient should be given dietary and fluid intake advice and a suitable laxative, such as lactulose, can be prescribed.

Next question

Propofol (2,6-diisopropylphenol) is a short acting phenol derivative that is primarily used for the induction of anaesthesia.

Its mechanism of action is unclear but is thought to act by potentiating the inhibitory neurotransmitters GABA and glycine, which enhances spinal inhibition during anaesthesia.

The dose for induction of anaesthesia is 1.5-2.5mg/kg. The dose for maintenance of anaesthesia is 4-12 mg/kg/hour. Following intravenous injection propofol acts within 30 seconds and its duration of action is 5-10 minutes.

Propofol produces a 15-25% decrease in blood pressure and systemic vascular resistance without a compensatory increase in heart rate. It is negatively inotropic and decreases cardiac output by approximately 20%.

The main side effects of propofol are:

- Pain on injection (in up to 30%)
- Hypotension
- Transient apnoea
- Hyperventilation
- Coughing and hiccough
- Headache
- Thrombosis and phlebitis

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Question SBA: #18476

SBAQ: Pharmacology

Tag

Report this question

Propofol:

Score 1 of 1

Which SINGLE statement regarding propofol is FALSE?

Answer	Option	Question Statistics
	Following intravenous injection it acts within 30 seconds	7%
	It is thought to act by potentiating the inhibitory neurotransmitters GABA and glycine	19%
✔	It produces a 15-25% decrease in blood pressure with a compensatory increase in heart rate	38%
	Its duration of action is 5-10 minutes	18%
	It decreases cardiac output by approximately 20%	17%

Explanation:

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Question SBA: #26361

SBAQ: Pharmacology

Tag

Report this question

Proton pump inhibitors:

Score 1 of 1

A GP has referred a 39-year-old patient to you with worsening epigastric pain. The patient has had omeprazole for the last month, but her symptoms are worsening.

Which ONE of the following is NOT a recognised association of proton pump inhibitor therapy?

Answer	Option	Question Statistics
	Diarrhoea	11%
✔	Pelvic fracture	58%
	Constipation	12%
	Hypomagnesaemia	2%
	Focal tachyarrhythmias	17%

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Question SBA: #14071

SBAQ: Pharmacology

Tag

Report this question

Paracetamol:

Score 1 of 1

Which SINGLE statement regarding paracetamol is true?

Answer	Option	Question Statistics
	It is a highly selective COX-1 inhibitor	5%
	It inhibits the production of thromboxanes	3%
✔	It causes liver damage via its metabolite NAPQI	87%
	It can only be administered orally	3%
	It has a biological half-life of 12 hours	2%

Explanation:

Tag

Report this question

Which SINGLE statement regarding dobutamine is true?

Answer	Option	Question Statistics
✖	It is a precursor of adrenaline	18%
	It only acts at beta-adrenergic receptors	12%
	Its primary activity results from stimulation of beta2-adrenergic receptors	22%
	Side effects are common at a dose of 5 µg/kg/min	6%
✔	It may be infused via a peripheral line	42%

Explanation:

Dobutamine is a synthetic isoprenaline derivative that is used to provide inotropic support in patients with low cardiac output due to septic shock, myocardial infarction, and other cardiac conditions.

Dobutamine is a directly acting sympathomimetic whose primary activity results from **stimulation of beta$_1$-adrenergic receptors in the heart**. It therefore has positively inotropic effects, increasing cardiac contractility and cardiac output. It also has some weak alpha$_1$-adrenergic and beta$_2$-adrenergic activity.

It is infused intravenously diluted in a suitable crystalloid solution to a volume of at least 50 ml. **The dose range is 0.5-40 µg/kg/min**, titrated to response. Skin necrosis due to extravasation is rare and dobutamine may be given via a peripheral line.

Side effects are uncommon at dose ranges below 10 µg/kg/min, but at higher doses the following can occur:

- Nausea and vomiting
- Tachycardia
- Dysrhythmias
- Angina
- Hypertension
- Headache

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Tag

Report this question

Anaphylaxis:

Score 0 of 1

Which ONE of the following is an absolute contraindication to the administration of adrenaline in an anaphylactic reaction?

Answer	Option	Question Statistics
✗	Second stage of labour	7%
	Ventricular arrhythmia	12%
	Malignant hypertension	19%
	A previous history of a myocardial infarction	2%
✓	None of the other options	60%

Tag

Report this question

Which of the following statements regarding proton pump inhibitors (PPIs) is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
	Long term PPI use can cause low serum magnesium levels	1%
✔	PPI use is associated with an increased risk of bradyarrhythmias	41%
✖	PPI use is associated with an increased risk of community-acquired pneumonia	28%
	Long term use is associated with an increased risk of wrist fractures	15%
	The use of PPIs reduces the risk of re-bleeding following endoscopic treatment of bleeding peptic ulcers	6%

Tag

Report this question

A 21-year-old woman has had discoloured teeth since taking a medication as a child. On inspection you can see grayish-brown horizontal stripes across all of her teeth.

Which of the following medications is MOST likely to have caused this? Select ONE answer only.

Answer	Option	Question Statistics
	Sodium valproate	13%
	Trimethoprim	6%
	Phenytoin	20%
	Metronidazole	2%
✔	Doxycycline	59%

Report this question

Which of the following is LEAST likely to be seen on the ECG of a patient that has taken a tricyclic antidepressant overdose? Select ONE answer only.

Answer	Option	Question Statistics
	Prolongation of the QT interval	10%
	Broadening of the QRS complex	8%
	Sinus tachycardia	13%
✔	Shortening of the PR interval	64%
	Ventricular arrhythmias	5%

Report this question

Which SINGLE statement regarding atracurium is FALSE?

Answer	Option	Question Statistics
✔	Satisfactory intubating conditions are produced within 30 seconds of administration	33%
✖	It competes with acetylcholine for nicotinic receptor binding sites	22%
	The 'intubating' dose is 0.3-0.6 mg/kg	1%
	Histamine release may occur if doses >600 µg/kg are used	10%
	There is a linear relationship between the dose and the duration of action	25%

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Question 30A: #16111

Tag

Report this question

Isoniazid and peripheral neuropathy:

Score 0 of 1

Which of the following statements is true about isoniazid and peripheral neuropathy?

Answer	Option	Question Statistics
	It can be prevented by the co-administration of pyridoxine at a dose of 1 mg for each 100 mg of isoniazid given	46%
	Peripheral neuropathy cannot be prevented in patients taking isoniazid	4%
✗	Peripheral neuropathy occurs in 5% of patients taking isoniazid at a dose of greater than 6 mg/kg daily	17%
	The co-administration of pyridoxine interferes with the antituberculous action of isoniazid	3%
✓	Isoniazid combines with pyridoxine to form hydrazone, which is excreted in the urine	29%

of isoniazid

✔ Isoniazid combines with pyridoxine to form hydrazone, which is excreted in the urine — 29%

Explanation:

Isoniazid is a first-line agent for the treatment of tuberculosis. One of the commonest side effects of isoniazid is **peripheral neuropathy**, which occurs in up to 20% of patients taking the drug at a dose of greater than 6 mg/kg daily.

Peripheral neuropathy occurs because isoniazid combines with pyridoxine (vitamin B6) to form hydrazone, which is subsequently excreted in the urine. This results in a **deficiency of biologically active pyridoxine** that results in a peripheral neuropathy.

The peripheral neuropathy of isoniazid can be prevented by the co-administration of pyridoxine at a dose of 10 mg for each 100 mg of isoniazid given. The administration of pyridoxine does not interfere with the antituberculous action of isoniazid.

Finish

Tag

Report this question

Oral Rehydration Therapy (ORT) :

Score 0 of 1

A 4-year-old boy presents with viral gastroenteritis. You recommend treatment with oral rehydration therapy (ORT) e.g. dioralyte.

Which of the following statements regarding the use of ORT in the management of gastroenteritis is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
	50 ml/kg given over 4 hours is recommended for the treatment of mild dehydration	11%
✔	ORT is sugar-free	42%
	ORT is hypo-osmolar	30%
✖	To prevent dehydration a child with diarrhoea should drink 200 ml of ORT after each loose stool	12%
	ORT contains salts	4%

Explanation:

ORT is a fluid replacement strategy used to prevent or treat dehydration. It is less invasive that other strategies for fluid replacement and has been successful at lowering the mortality rate of diarrhoea in developing countries.

ORT contains glucose (e.g. 90 mmol/L in dioralyte). The addition of glucose improves sodium and water absorption in the bowel and prevents hypoglycaemia. It also contains essential mineral salts.

Current NICE guidance recommends that 50 ml/kg is given over 4 hours for the treatment of mild dehydration.

Once rehydrated, a child should continue with their usual daily fluid intake plus 200ml ORT after each loose stool. In an infant give ORT at 1-1.5 x the normal feed volume and in an adult give 200-400 mL after each loose stool.

For further information refer to the NICE guidance on diarrhoea and vomiting caused by gastroenteritis in under 5s: www.nice.org.uk

The patient has had a previous history of anaphylaxis following their first BCG vaccination 25%

✔ The patient is asplenic 29%

Explanation:

All vaccines are recommended, whether live or inactivated, in patients with asplenia.

A history of anaphylaxis following any vaccination would be a contraindication to having that vaccine again.

BCG is a live vaccine. Live vaccinations are generally contraindicated in the following situations:

- Pregnancy
- HIV, whether asymptomatic or symptomatic
- If less than 3 weeks after another live vaccine (although 2 live vaccinations can be given together at different sites of the body)
- Other illnesses causing severe compromise of the immune system
- Haematological malignancies

The CDC has some excellent guidelines that can be viewed here: www.cdc.gov

Next question

Explanation:

In a child with a non-blanching rash meningococcal septicaemia should always be suspected. That is especially true if one or more of the following are present:

- An ill-looking child
- Lesions larger than 2 mm in diameter (purpura)
- Capillary refill time of > 3 seconds
- Neck stiffness

In the UK, most cases of meningococcal septicaemia are caused by *Neisseria meningitidis* group B.

The vaccination programme for *Neisseria meningitidis* group C has made this type much less common. A vaccine for group B disease has recently been introduced for infants.

The child in this case is clearly very sick and is demonstrating signs of septic shock. A single dose of benzylpenicillin should be given without delay and the child transferred immediately via ambulance to the nearest Emergency Department.

The recommended doses of benzylpenicillin according to age are:

- Infants < 1 year of age: IM or IV benzylpenicillin 300 mg
- Children 1 to 9 years of age: IM or IV benzylpenicillin 600 mg
- Children and adults 10 years or older: IM or IV benzylpenicillin 1.2 g

diuretic:

Diuretic	Mechanism of action
Loop diuretics e.g. furosemide, bumetanide	Act on the Na.K.2Cl co-transporters in the ascending loop of Henlé to inhibit sodium, chloride and potassium reabsorption.
Thiazide diuretics e.g. bendroflumethiazide, hydrochlorothiazide	Act on the Na.Cl co-transporter in the distal convoluted tubule to inhibit sodium and chloride reabsorption.
Osmotic diuretics e.g. mannitol	Increases the osmolality of the glomerular filtrate and tubular fluid, increasing urinary volume by an osmotic effect.
Aldosterone antagonists e.g. spironolactone	Acts in the distal convoluted tubule as a competitive aldosterone antagonist resulting in inhibition of sodium reabsorption and increasing potassium reabsorption.
Carbonic anhydrase inhibitors e.g. acetazolamide	Inhibits the enzyme carbonic anhydrase preventing the conversion of bicarbonate and hydrogen ions into carbonic acid. This reduces the availability of hydrogen ions and causes sodium and bicarbonate to remain in the renal tubule resulting in diuresis.

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Question SBA: #18341

SBAQ: Pharmacology

Tag

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Aspirin:

Score 1 of 1

Which SINGLE statement regarding aspirin is true?

Answer	Option	Question Statistics
✔	The effects of a single dose last 7-10 days	41%
	Long term use predisposes to colon cancer	7%
	It inhibits prostaglandin production at low doses	35%
	It can be given as an anti-pyretic for childhood viral illness	11%
	Aspirin resistance is more common in men than women	6%

Tag

Report this question

Side effects of anti-hypertensive medications:

Score 1 of 1

A 52 year-old man, who has recently has been diagnosed with hypertension, presents with weakness, stiffness and aching of his legs that is most pronounced around his hips and thighs. On examination he has reduced tone in his legs and a reduced patellar tendon reflex. He finds standing from a seated position somewhat difficult. There is no apparent sensory deficit. He has recently been started on a medication for his hypertension.

A recent check of his U&Es reveals the following biochemical picture:

- K+ 6.9 mmol/L
- Na+ 138 mmol/L
- eGFR 50 mls/min/1.73m2.

What of the following is MOST likely to be the anti-hypertensive medication he has been prescribed? Select ONE answer only.

Answer	Option	Question Statistics
✔	Captopril	71%

Explanation:

This patient has presented with symptoms and signs consistent with myopathy. Myopathy is characterised by:

- Muscle weakness
- Muscle atrophy
- Tone and reflexes can be reduced

Hyperkalaemia is a known biochemical cause for myopathy. Other metabolic causes include:

- Hypokalaemia
- Hypercalcaemia
- Hypomagnesaemia
- Hyperthyroidism
- Hypothyroidism
- Diabetes mellitus
- Cushing's disease
- Conn's syndrome

ACE inhibitors, such as captopril, are a well-recognised cause of hyperkalaemia and are likely to be the culprit in this case.

Other commonly encountered side effects of ACE inhibitors include:

- Renal impairment
- Persistent dry cough
- Angioedema (onset can be delayed)
- Rashes
- Upper respiratory tract symptoms including sore throat
- Gastrointestinal upset

Losartan 50 mg PO

Explanation:

A blood pressure > 180/105 mmHg is a contraindication to thrombolysis and this patients blood pressure should be reduced to below that level within the thrombolysis window in order to proceed. Oral medication will be unlikely to work fast enough to facilitate this and an intravenous antihypertensive agent will be required.

A very common choice of agent in these circumstances is labetolol at a dose of 10 mg IV over 1-2 minutes. This dose can be repeated or an infusion can be set up that runs at 2-8mg/minute. Once the blood pressure is brought down to less than 180/105 mmHg thrombolysis can be performed.

A nitrate infusion (for example Isoket) can be used as an alternative in patients with contraindications to the use of beta-blockers (e.g. asthma, heart block, cardiac failure).

The full NICE guidelines on stroke and transient ischaemic attack in over 16s can be read here.

Next question

Losartan 50 mg PO

Explanation:

A blood pressure > 180/105 mmHg is a contraindication to thrombolysis and this patients blood pressure should be reduced to below that level within the thrombolysis window in order to proceed. Oral medication will be unlikely to work fast enough to facilitate this and an intravenous antihypertensive agent will be required.

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The full NICE guidelines on stroke and transient ischaemic attack in over 16s can be read here.

Next question

Explanation:

Flecainide is a class Ic antiarrhythmic agent that acts by blocking the Nav1.5 sodium channel in the heart, thereby prolonging the cardiac action potential and slowing conduction of the cardiac impulse within the heart. It has a profound effect on conduction in accessory pathways, especially on retrograde conduction, and markedly suppresses ventricular ectopic foci.

Flecainide can be used in the treatment of many different arrhythmias including:

- Pre-excitation syndromes (e.g. Wolff-Parkinson-White)
- Acute atrial arrhythmias
- Ventricular arrhythmias

It has also been shown to be effective in the treatment of chronic neuropathic pain. www.ncbi.nlm.nih.gov

The adult oral dose is 100-200 mg 12-hourly. Intravenously it may be administered as a bolus dose of 2 mg/kg over 10 minutes followed b an infusion of 1.5 mg/kg/hour for one hour, reducing to 0.25 mg/kg/hour.

Flecainide should not be alone in the treatment of atrial flutter. If used alone there is a risk of inducing 1:1 atrioventricular conduction, with a consequent paradoxical increase in ventricular rate.

Flecainide is indicated only in patients without structural heart disease for the prevention, rapid control, or short-term prophylaxis of supraventricular and ventricular arrhythmias. The CAST trial showed a significant increase in sudden cardiac death and all-cause mortality in patients post-myocardial infarction, where is tended to be pro-arrhythmic, and in patients with an ejection fraction of < 40%. circ.ahajournals.org

Recognized side effects of flecainide include:

- Reversible liver toxicity
- Dizziness/vertigo
- Nausea and vomiting
- Visual disturbance
- Parasthesiae
- Interstitial lung disease

carbamazepine

Explanation:

This man has developed Dupuytren's contracture, a fixed flexion deformity of the hand caused by palmar fibromatosis.

The only anticonvulsant therapy thought to be associated with the development of Dupuytren's contracture is phenytoin.

Other conditions linked with its development include:

- Liver cirrhosis
- Diabetes mellitus
- Alcoholism
- Trauma

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Next question

Tag

Report this question

Adrenaline:

Score 0 of 1

Which SINGLE statement regarding adrenaline is true?

Answer	Option	Question Statistics
✖	The IV dose in adult cardiac arrest is 0.1 mg	11%
	It is not absorbed from the tracheal mucosa	2%
	It is well absorbed orally	4%
✔	It is predominantly metabolized by COMT and MAO	70%
	It is a selective alpha-adrenergic receptor agonist	13%

Tricyclic antidepressants (TCAs) are mainly used in the treatment of depression but are also used in the treatment of anxiety disorders, chronic pain conditions and attention-deficit hyperactivity disorder (ADHD).

The majority of TCAs act primarily as serotonin-noradrenaline reuptake inhibitors (SNRIs) by blocking the serotonin transporter (SERT) and the noradrenaline transporter. This results in an elevation in the synaptic concentrations of serotonin and noradrenaline, and therefore an enhancement of neurotransmission.

Many of the common side effects of TCAs are related to their antimuscarinic properties. These include:

- Dry mouth and mucous membranes
- Blurred vision
- Constipation
- Urinary retention
- Cognitive impairment

Other side effects include:

- Anxiety
- Apathy and anhedonia
- Akathisia
- Confusion
- Sexual dysfunction
- Gynaecomastia and lactation
- Dysrrhythmias

TCAs should not be used concomitantly with monoamine oxidase inhibitors (MAOIs), such as selegiline, and should be started at least 2 weeks after stopping the MAOI. There is a risk of developing serotonin toxicity is the two drug classes are used together.

Serotonin syndrome may occur with TCA overdose. Features of this syndrome include CNS effects (including agitation and coma), autonomic instability (including hyperpyrexia) and neuromuscular excitability (including clonus and raised serum creatine kinase).

Contraindications to the use of TCAs include:

- The recovery period from MI
- Heart block
- Arrhythmias
- Manic phase of bipolar affective disorder
- Acute porphyria

Explanation:

This patient has a classical presentation of temporal arteritis. Temporal arteritis, also known as giant cell arteritis (GCA), is a type of chronic vasculitis characterized by granulomatous inflammation in the walls of medium and large arteries. It usually affects people over 50 years of age.

Clinical features include:

- Headache
- Scalp tenderness
- Jaw claudication
- Amaurosis fugax or sudden blindness (typically unilateral).

Some patients also present with systemic features such as fever, fatigue, anorexia, weight loss, and depression.

It is associated with polymyalgia rheumatica (PMR) in 50% of cases (bilateral upper arm stiffness, aching, and tenderness; pelvic girdle pain).

Visual loss occurs early in the course of disease and, once established, it rarely improves.

Early treatment with high-dose corticosteroids is imperative to prevent further visual loss and other ischaemic complications. If GCA is suspected high-dose glucocorticosteroid treatment should be initiated immediately (40 - 60 mg prednisolone daily). An urgent referral for specialist evaluation (same day ophthalmology assessment for those with visual symptoms) and temporal artery biopsy should also be organised.

Question SBA: #18096

Tag

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Hypoglycaemia:

Score 1 of 1

A 65-year-old man from a nursing home suffers an episode of collapse. His BM is measured and is discovered to be 2.2. He has a history of diabetes mellitus.

Which of the following is LEAST likely to be responsible for his hypoglycaemic episode? Select ONE answer only.

Answer	Option	Question Statistics
✔	Metformin	75%
	Gliclazide	7%
	Pioglitazone	10%
	Novomix 30	4%
	Actrapid	4%

Explanation:

Metformin is a biguanide that when used alone dose not cause hypoglycaemia, although it can worsen hypoglycaemia when used in combination with other agents, such as sulphonylureas.

Gliclazide is a sulphonyurea drug, which is a recognised cause of hypoglycaemia. Pioglitazone is a thiazolidinedione and is also a recognised cause of hypoglycaemia. Actrapid and novomix are both preparations of insulin.

Next question

✔ 2 mg 61%

Explanation:

Bumetanide is 40 times more potent than furosemide and a dose of 1 mg is roughly equivalent to 40mg of furosemide. This patient is taking 80 mg of furosemide and should therefore be switched to a 2 mg once daily dose of bumetanide.

Next question

Question SBA: #26401

SBAQ: Pharmacology

Tag

Report this question

Diuretics:

Score 1 of 1

Which SINGLE statement regarding diuretics is true?

Answer	Option	Question Statistics
	Spironolactone is an aldosterone agonist	14%
	Mannitol is freely reabsorbed at the glomerulus	16%
	Bendroflumethiazide can result in hypocalcaemia	23%
✔	Acetazolamide is useful in aspirin overdose	33%
	Loop diuretics act on the descending loop of Henlé	14%

Demeclocycline 28%

Explanation:

The syndrome of inappropriate antidiuretic hormone (ADH) secretion (SIADH) is defined as the presence of hyponatremia and hypo-osmolality resulting from inappropriate, continued secretion or action of the hormone despite normal or increased plasma volume, which results in impaired water excretion.

There are numerous causes of SIADH, of which carbamazepine is a well recognized example.

The causes of SIADH include:

- CNS damage: meningitis, subarachnoid haemorrhage
- Malignancy: small-cell lung cancer
- Drugs: carbamazepine, SSRIs, amitryptline, morphine
- Infection: pneumonia, lung abscess, brain abscess
- Endocrine: hypothyroidism

Demeclocycline is a tetracycline antibiotic that reduces the sensitivity of ADH receptors in the distal convoluted tubules. It is sometimes used in the management of SIADH that has responded to fluid restriction alone.

Next question

Tag

Report this question

Which of the following is LEAST likely to occur following the administration of thiopental sodium? Select ONE answer only.

Answer	Option	Question Statistics
	Decreased cardiac output	6%
	Hypotension	9%
✔	Decreased vasopressin secretion	56%
	Respiratory depression	15%
	Decreased renal blood flow	13%

Explanation:

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Question 2 of 30

SBAQ: Pharmacology

Question SBA: #18221

Tag

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Sodium valproate:

Score 1 of 1

Which SINGLE statement regarding sodium valproate is true?

Answer	Option	Question Statistics
	It reduces brain GABA levels	12%
	It is a cytochrome P450 enzyme inducer	21%
	Approximately 10% of users experience irreversible hair loss	10%
	Routine monitoring of levels is recommended	16%
✔	It has a 10% risk of birth defects if taken in pregnancy	41%

Explanation:

Sodium valproate is a medication primarily used in the treatment of epilepsy, but also used to manage migraine, chronic pain disorders, and bipolar affective disorder. It has a broad spectrum of anticonvulsant activity, but is primarily used in the treatment of tonic-clonic seizures, absence seizures, and myoclonic seizures. It is also used as a second-line treatment of partial seizures (including temporal lobe epilepsy) and infantile spasms.

Sodium valproate is thought to act via GABA-ergic inhibition. It is a weak inhibitor of sodium channels and is also a weak inhibitor of enzymes that deactivate GABA, such as GABA transaminase, it therefore increases brain GABA levels.

The adult oral dose is 600-2500 mg daily in two divided doses. The intravenous dose is 400-2500 mg daily in divided doses.

Sodium valproate is a cytochrome P450 enzyme inhibitor and therefore may potentiate the effects of other anti-epileptics, such as phenytoin.

The routine monitoring of sodium valproate levels is not recommended but the checking of levels is advised in the case of side effects or overdose.
The effective plasma range is 40-100 mg/l.

Approximately 10% of users experience hair loss, but this is reversible on discontinuation of the drug. The hair re-growth tends to be 'curly'.

Other side effects include:

- Thrombocytopaenia
- Ataxia
- Hepatitis
- Weight gain
- Amenorrhoea
- Gynaecomastia

The risk of birth defects in mothers taking sodium valproate is 2-5 times higher than with other frequently used antiepileptic drugs and it has an overall associated rate of birth defects of around 10%.

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Question 3 of 30

SBAQ: Pharmacology

Question SBA: #13691

Tag
Report this question

Anti-epileptic medication:

Score 0 of 1

You review a 30-year-old woman with recently diagnosed epilepsy. She has been started on an anti-epileptic medication but has subsequently developed a postural tremor.

Which of the following is the MOST LIKELY responsible anti-epileptic medication? Select ONE option only.

Answer	Option	Question Statistics
✔	Sodium valproate	36%
✖	Levetiracetam	11%
	Carbamazepine	18%
	Gabapentin	7%
	Phenytoin	28%

Explanation:

Postural tremor is the most common neurological side effect observed with sodium valproate. A resting tremor can also occur. Approximately 25% of patients taking sodium valproate are found to develop a tremor with 12 months of starting therapy.

Other side effects of sodium valproate include:

- Gastric irritation
- Nausea and vomiting
- Involuntary movements
- Transient hair loss
- Weight gain (females)
- Impaired liver function

Next question

Explanation:

Although statins are for the most part relatively safe and well tolerated they are a well-recognized cause of myopathy and myotoxicity. Statins can cause a spectrum of myotoxicity varying from myalgia to rhabdomylosis in the most severe cases. Rhabdomyloysis is the most severe adverse effect of statins, and can result in renal failure, disseminated intravascular coagulation, and even death.

The range of myotoxicity associated with statins is as follows:

- Myalgia – muscle symptoms without elevation of creatine kinase (CK)
- Asymptomatic mopathy – elevated CK without muscle symptoms
- Myositis – muscle symptoms with CK elevated < 10 x upper limit of normal
- Rhabdomyolsis – muscle symptoms, CK elevated > 10 x upper limit of normal with potential myoglobinuria and renal failure

Most statins are metabolized by the cytochrome P450 enzyme system and co-prescription with drugs that are potent inhibitors of cytochrome P450 can significantly increase the plasma concentration of the statin. This in turn increases the risk of myopathy. A commonly cited example of this is the use of the macrolide antibiotics erythromycin and clarithromycin, which when co-prescribed with statins are associated with an increased risk of myopathy, hospital admission with rhabdomylosis, acute kidney injury, and all cause mortality.

Tag

Report this question

Drug-interactions:

Score 1 of 1

A 56-year-old man that is prescribed simvastatin for hypercholesterolaemia develops deep muscle pains following a course of antibiotics for a chest infection. He is subsequently admitted to hospital where he is found to be in acute renal failure and his creatine kinase (CK) level is 1260 units/litre.

Which of the following antibiotics is he most likely to have been prescribed? Select ONE answer only.

Answer	Option	Question Statistics
	Amoxicillin	2%
	Co-amoxiclav	3%
	Doxycycline	21%
	Cefalexin	6%
✔	Clarithromycin	66%

Which of the following is the 'intubating' dose of suxamethonium? Select ONE answer only.

Answer	Option	Question Statistics
	2-4 µg/kg	11%
	0.5-2 µg/kg	13%
	2-4 mg/kg	16%
	4-6 µg/kg	5%
✔	0.5-2 mg/kg	54%

Explanation:

The 'intubating' dose of suxamethonium is 0.5-2 mg/kg and the usual single dose for an adult is between 50-100 mg intravenously. Infants and younger children are relatively resistant to suxamethonium and usually require a dose of 1-2 mg/kg.

Explanation:

Suxamethonium is a depolarizing neuromuscular blocker that is used to induce muscle relaxation and short-term paralysis, usually to facilitate endotracheal intubation.

Suxamethonium causes a 'persistent' depolarization by mimicking the effects of acetylcholine without being rapidly hydrolysed by acetylcholinesterase. It therefore inhibits the action of acetycholine at the neuromuscular junction and the propagation of an action potential is prevented.

The dose of suxamethonium is 0.5-2 mg/kg and the usual single dose for an adult is between 50-100 mg intravenously. Infants and younger children are relatively resistant to suxamethonium and usually require a dose of 1-2 mg/kg. **The onset of action occurs within 30 seconds and the duration of action is 3-5 minutes.**

Suxamethonium is **contraindicated in patients with recent burns but can be given in the first 24 hours following the burn.** It is also **contraindicated in patients with spinal cord trauma causing paraplegia.** It can be given immediately after the injury but should be avoided from approximately day 10 to day 100 after the injury.

Other contraindications to the use of suxamethonium include:

- Severe muscle trauma
- Hyperkalaemia
- History of malignant hyperthermia

Recognized adverse effects of suxamethonium include:

- Bradycardia
- Hyperkalaemia
- Raised intracranial pressure
- Raised intraocular pressure
- Prolonged paralysis
- Anaphylaxis
- Malignant hyperthermia

Explanation:

Supraventricular tachycardia (SVT) is the most common non-arrest arryhthmia during childhood and is the most common arrhythmia that produces cardiovascular instability during infancy.

The current APLS guidelines recommend that if the patient has no features of shock and remains haemodynamically stable then vagal maneovres should be attempted initially. If this is unsuccessful then:

- An initial dose of 100 mcg/kg of adenosine should be given.
- After two minutes another dose of 200 mcg/kg adenosine should be given is the child remains in stable SVT
- After a further two minutes another dose of 300 mcg/kg adenosine should be given

If the child remains in stable SVT despite these measures then the guidelines recommend that following be considered:

- Adenosine 400-500 mcg/kg
- Synchronous DC shock
- Amiodarone

Amiodarone, if given, should be administered initially at a dose of 5-10 mg/kg over 20 minutes to 2 hours, then by continuous infusion 300 mcg/kg/hour increased according to response by 1.5 mg/kg/hour. The infusion rare should not exceed 1.2 g in 24 hours.

If defibrillation is used for the treatment of SVT in children it should be as a DC synchronous shock at 1-2 J/kg.

Explanation:

This patient has a supraventricular tachycardia (SVT). The management of SVTs is as follows:

- Use vagal manoeuvres followed by;
- Adenosine 6 mg rapid IV bolus;
- If unsuccessful give adenosine 12 mg rapid IV bolus;
- If unsuccessful give further adenosine 12 mg rapid IV bolus
- Monitor ECG continuously

If this is unsuccessful a diagnosis of possible atrial flutter should be considered and rate control, for example with a beta-blocker, commenced.

If the adverse features are present then a synchronised DC shock should be performed. Signs of instability include:

- Shock
- Syncope
- Myocardial ischaemia
- Heart failure

Next question

Ventricular arrhythmias

Explanation:

The cardiotoxic effects of TCAs are mediated by the blockade of sodium channels, which causes QRS broadening, and blockade of potassium channels, which causes QT interval prolongation. The degree of QRS broadening correlates with adverse events:

- QRS > 100 ms is predictive of seizures
- QRS > 160 ms is predictive of ventricular arrhythmias

The ECG changes seen in TCA overdose include:

- Sinus tachycardia (very common)
- Prolongation of the PR interval
- Broadening of QRS complex
- Prolongation of the QT interval
- Ventricular arrhythmias (severe toxicity)

Next question

Tag

Report this question

Tricyclic antidepressants (TCAs):

Score 0 of 1

Which SINGLE statement regarding tricyclic antidepressants is FALSE?

Answer	Option	Question Statistics
	Serotonin syndrome may occur with overdose	9%
	They should not be used concomitantly with monoamine oxidase inhibitors	10%
✔	They are an effective treatment in the manic phase of bipolar affective disorder	52%
✘	They block the noradrenaline transporter	20%
	They can cause gynaecomastia	9%

Explanation:

Tricyclic antidepressants (TCAs) are mainly used in the treatment of depression but are also used in the treatment of anxiety disorders, chronic pain conditions and attention-deficit hyperactivity disorder (ADHD).

The majority of TCAs act primarily as serotonin-noradrenaline reuptake inhibitors (SNRIs) by blocking the serotonin transporter (SERT) and the noradrenaline transporter. This results in an elevation in the synaptic concentrations of serotonin and noradrenaline, and therefore an enhancement of neurotransmission.

Many of the common side effects of TCAs are related to their antimuscarinic properties. These include:

- Dry mouth and mucous membranes
- Blurred vision
- Constipation
- Urinary retention
- Cognitive impairment

Other side effects include:

- Anxiety
- Apathy and anhedonia
- Akathisia
- Confusion
- Sexual dysfunction
- Gynaecomastia and lactation
- Dysrhythmias

TCAs should not be used concomitantly with monoamine oxidase inhibitors (MAOIs), such as selegiline, and should be started at least 2 weeks after stopping the MAOI. There is a risk of developing serotonin toxicity is the two drug classes are used together.

Serotonin syndrome may occur with TCA overdose. Features of this syndrome include CNS effects (including agitation and coma), autonomic instability (including hyperpyrexia) and neuromuscular excitability (including clonus and raised serum creatine kinase).

Contraindications to the use of TCAs include:

- The recovery period from MI
- Heart block
- Arrhythmias
- Manic phase of bipolar affective disorder
- Acute porphyria

Tag

Report this question

Tetanus prophylaxis:

Score 1 of 1

The following patients have suffered wounds or injuries and have been managed as described in a local walk in centre.

Which of the following patients has received appropriate tetanus cover? Select ONE answer only.

Answer	Option	Question Statistics
	25-year-old from Romania, cut hand on a drinking glass, uncertain of vaccination history - receives immunoglobulin and vaccination	4%
	8-year-old UK resident, cut hand on a kitchen knife, had primary course of vaccinations as a baby plus booster at 4 years - receives vaccination	6%
✔	80-year-old diabetic, a rusty nail went through his shoe and into his foot when walking in the woods, uncertain of vaccination history - receives vaccination and immunoglobulin	67%
	30-year-old, electrical burn to torso with large amount of devitalised tissue - has had all vaccinations so no need for vaccination or immunoglobulin	7%
	28-year-old man from Poland, cuts leg whilst working in garden, wound heavily contaminated with soil, uncertain of vaccination history – receives vaccination	17%

25 year old from Romania, cut hand on a drinking glass, uncertain of vaccination history - receives immunoglobulin and vaccination:
This is not a tetanus prone wound and therefore immunoglobulin is not indicated. As you cannot be sure of his vaccination history the best practice would be to take opportunity to commence course of tetanus vaccinations for cover later in life. The first vaccination should be given at the time of presentation, the patient's own GP should then check vaccination history and arrange the remainder of course as indicated.

8-year-old UK resident, cut hand on a kitchen knife, had primary course of vaccinations as a baby plus booster at 4 years - receives vaccination:
This child's tetanus vaccinations are on schedule and the next booster should not to be given early. This is not a tetanus prone wound so immunoglobulin is not indicated.

80-year-old diabetic, a rusty nail went through his shoe and into his foot when walking in the woods, uncertain of vaccination history - receives vaccination and immunoglobulin:
An 80-year-old UK resident may not have received a course of tetanus vaccinations (the vaccination was introduced in 1961). The vaccination should be given in the walk in centre and the patient's own GP contacted to confirm vaccination history and arrange the remainder of course as indicated. This is a tetanus prone wound (puncture wound and potential contact with soil), therefore in a patient with incomplete tetanus vaccinations, immunoglobulin would be indicated.

28-year-old man from Poland, cuts leg whilst working in garden, wound heavily contaminated with soil, uncertain of vaccination history – receives vaccination:
This is a tetanus prone wound in a patient with an uncertain vaccination history. The best course of action in this case would therefore be give both the vaccination and immunoglobulin at the walk in centre and then contact the patient's own GP to check vaccination history and arrange the remainder of course as indicated.

30-year-old, electrical burn to torso with large amount of devitalised tissue - has had all vaccinations so no need for vaccination or immunoglobulin
This is a high-risk tetanus prone wound (large amount of devitalised tissue), therefore even if the patient has had a full course of vaccinations in the past, the guidelines recommend immunoglobulin. No further vaccination is required.

Thiopental sodium is a very short acting barbiturate that is primarily used for the induction of anaesthesia.

Barbiturates are thought to act primarily at synapses by depressing post-synaptic sensitivity to neurotransmitters and by impairing pre-synaptic neurotransmitter release.

The dose for induction of anaesthesia is 2-7 mg/kg. Following intravenous injection thiopental sodium rapidly reaches the brain and causes unconsciousness within 30-45 seconds and the effects last 5-15 minutes. Its effects are cumulative with repeated administration.

Thiopental sodium is negatively inotropic, decreases cardiac output by approximately 20%. It also decreases systemic vascular resistance. It is potent respiratory depressant and a period of apnoea may occur after administration. It also decreases renal blood flow and increases vasopressin secretion, resulting in a fall in urine output.

The main side effects of thiopental sodium are:

- Hypotension
- Arrhythmias
- Myocardial depression
- Laryngeal spasm
- Cough
- Headache
- Rash
- Hypersensitivity reactions

Explanation:

Toxic epidermal necrolysis is a severe and potentially fatal form of erythema multiforme. The disease causes the dermis to detach from the lower layers of skin. Death can occur secondary to sepsis and multi-organ failure.

Stevens-Johnson syndrome and toxic epidermal necrolysis are considered to be a single mucocutaneous disease with an increasing severity. They can be differentiated by the degree of epidermal detachment seen. In Stevens-Johnson syndrome epidermal detachment is seen in less than 10% of the body surface area, whereas in toxic epidermal necrolysis epidermal detachment is seen in greater than 30% of the body surface area. An overlap syndrome exists when detachment is between 10-30% of the body surface area.

Drugs that can cause Stevens-Johnson syndrome and toxic epidermal necrolysis include:

- Tetracyclines
- Penicillins
- Vancomycin
- Sulphonamides
- NSAIDs
- Barbiturates

Trimethoprim binds to dihydrofolate reductase and inhibits the reduction of dihydrofolic acid (DHF) to tetrahydrofolic acid (THF). THF is an essential precursor in the thymidine synthesis pathway and interference with this pathway **inhibits bacterial protein synthesis**.

An overview of the different mechanisms of action of the various types of antimicrobial agents is shown below:

Mechanism of action	Examples
Inhibition of cell wall synthesis	Penicillins Cephalosporins Vancomycin
Disruption of cell membrane function	Polymyxins Nystatin Amphotericin B
Inhibition of protein synthesis	Macrolides Aminoglycosides Tetracyclines Chloramphenicol
Inhibition of nucleic acid synthesis	Quinolones Trimethoprim 5-nitroimidazoles Rifampicin
Anti-metabolic activity	Sulfonamides Isoniazid

Question SBA: #13786

Tag

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Hepatitis B vaccination:

Score 0 of 1

Which of the following statements regarding hepatitis B vaccination is FALSE? Select ONE answer only.

Answer	Option	Question Statistics
	It is recommended for all health care professional's working in the UK	5%
	A titre above 100 mIU/ml is regarded as adequate	7%
✖	Antibody titres should be tested 1 month after the final injection	21%
✔	There is a well-recognised association with Guillain-Barre syndrome	54%
	The vaccine contains hepatitis B surface antigen	12%

Explanation:

The hepatitis B vaccine contains the viral envelope protein, hepatitis B surface antigen (HBsAg). Vaccination results in the generation of the antibody anti-HBsAg. The vaccine is currently recommended for all healthcare professionals working in the UK.

The UK course is three injections of the hepatitis B vaccine over a 6-month period. Blood titres are taken one month after the third dose of the vaccine and levels above 100 mIU/ml is regarded as adequate. This generally provides immunity for at least 5 years. At 5 years after the initial injection a booster can be given.

There is no substantiated association with Guillain-Barre syndrome.

Next question

Explanation:

Vancomycin is a bactericidal antibiotic that acts by inhibiting cell wall synthesis in Gram-positive bacteria. It prevents N-acetylmuramic acid (NAM)- and N-acetylglucosamine (NAG)-peptide subunits from being incorporated into the peptidoglycan matrix; which forms the major structural component of Gram-positive cell walls. The large hydrophilic molecule is able to form hydrogen bond interactions with the terminal D-alanyl-D-alanine moieties of the NAM/NAG-peptides. This binding of vancomycin to the D-Ala-D-Ala prevents the incorporation of the NAM/NAG-peptide subunits into the peptidoglycan matrix.

Due to the different mechanisms by which Gram-negative bacteria produce their cell walls and the various factors related to entering the outer membrane of Gram-negative bacteria, it is not active against Gram-negative bacteria.

Vancomycin is not absorbed orally and is excreted unchanged renally. It has a biological half-life in adults of 4 to 11 hours in an adult with normal renal function but this can increase to as long as 10 days in patients with impaired renal function.

It is important for the treatment of patients with septicaemia or endocarditis caused by methicillin-resistant strains of *Staphlyococcus aureus*. It can also be given orally for the treatment of antibiotic-associated pseudomembranous colitis (*C.difficile* infection)

Common side effects of vancomycin include:

- Localised pain at injection site
- Thrombophlebitis

Rare side effects of vancomycin include:

- Renal failure (nephrotoxicity)
- Hearing loss (ototoxicity)
- Toxic epridermal necrolysis
- Erythema multiforme
- Red man syndrome
- Blood dyscrasias

Verapamil is a calcium channel-blocker used in the treatment of hypertension, angina, cardiac arrhythmias and most recently, cluster headaches.

Verapamil acts by blocking L-type calcium channels and has particularly powerful effects on the atrioventricular node (AV node), where conduction is entirely dependent on calcium spikes. It also inhibits the influx of Ca^{2+} during the plateau phase of the action potential and therefore has a negatively inotropic effect.

The adult oral dose of verapamil is 240-480 mg in 2-3 divided doses. The corresponding intravenous (IV) dose is 5-10 mg administered over 30 seconds. The peak effect after IV injection occurs at 3-5 minutes and the duration of action is 10-20 minutes.

Verapamil has largely been replaced by adenosine in the treatment of acute supraventricular tachycardia (SVT) because adenosine is relatively safer, although oral verapamil is still used in the prophylaxis of SVT.

Verapamil should not be used in combination with beta-blockers or quinidine because the cumulative negatively inotropic effects are potentially catastrophic.

The side effects of verapamil include:

- Dizziness
- Flushing
- Nausea and vomiting
- 1^{st} and 2^{nd} degree heart block
- Precipitation of heart failure in patients with

Verapamil should not be co-prescribed with which of the following drugs? Select ONE answer only.

Answer	Option	Question Statistics
✖	Warfarin	9%
✔	Bisoprolol	81%
	Paracetamol	2%
	Simvastatin	6%
	Amoxicillin	2%

Explanation:

Verapamil should not be used in combination with beta-blockers or quinidine because the cumulative negatively inotropic effects are potentially catastrophic.

Next question

Nicorandil 12%

Explanation:

Verapamil is a non-dihydropyridine calcium-channel blocker often used as an anti-arrhythmic and an anti-anginal.

Verapamil should not be used concomitantly with beta-blockers, such as atenolol, as their combined negatively inotropic and negatively chronotropic effects can cause marked hypotension, bradycardia, impaired atrioventricular conduction, heart failure (due to impaired cardiac contractility) and sinus arrest.

The other medications listed in this question can be safely used in combination with beta-blockers.

Next question

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Question SBA: #18396

SBAQ: Pharmacology

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Verapamil:

Score 0 of 1

Which SINGLE statement regarding verapamil is true?

Answer	Option	Question Statistics
✗	It is the first-line treatment of choice for supraventricular tachycardia	5%
	It has positively inotropic effects	5%
✓	It slows conduction in the atrioventricular node	77%
	It can only be administered orally	10%
	It acts primarily via beta-adrenoreceptor blockade	5%

12 weeks 19%

Explanation:

For a first episode of acute venous thromboembolism (VTE) warfarin should be started along with a parental anticoagulant, such as unfractionated heparin, low molecular weight heparin or fondaparinux. The parental anticoagulant should be continued for at least 5 days and ideally until the INR is > 2 for at least 24 hours.

At least 6 weeks of anticoagulant therapy is required to prevent extension of thrombus and recurrence in calf DVT and at least 3 months in proximal DVT.

First episodes of VTE should be treated with an ideal INR target of 2.5.

Patients with recurrent VTE whilst anticoagulated within therapeutic range should be managed by increasing the target INR to 3.5.

Please refer to the BJH guidelines on oral anticoagulation with warfarin:
www.bcshguidelines.com

Tag

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Whooping cough:

Score 1 of 1

A 6-year-old boy is diagnosed as having whooping cough. There are two members of the household that are considered to be within a 'priority group' for post-exposure chemoprophylaxis.

Which of the following is the MOST appropriate antibiotic to be prescribed for this purpose? Select ONE answer only.

Answer	Option	Question Statistics
	Penicillin V	12%
	Co-amoxiclav	5%
	Ciprofloxacin	9%
✔	Erythromycin	58%
	Rifampicin	16%